



## **Guide to MarketDelta Trading Strategies**

A practical guide for identifying Footprint patterns and strategies

# **Guide to MarketDelta Trading Strategies**

**Giving you the edge in electronic trading**

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*by Malato Harnett LLC*

10/20/2004

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# Guide to MarketDelta Strategies

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# Part



# 1

# 1 MarketDelta Patterns & Trading Strategies

## 1.1 MarketDelta Patterns & Trading Strategies

This is a hands on strategy manual that will provide ideas on how MarketDelta™ and the Footprint™ chart can be understood and used. The format is to provide the anatomy of a Footprint™ and the variations of Footprints™ and then provide real life trading examples of patterns and setups that you will come cross while trading.

Although the Footprint™ may look abstract at first, please give it a chance and look at it as just another chart, similar to a bar or candlestick chart. Viewed in that manner, you will quickly realize the Footprint™ is simply not just another chart, but a tool you won't be able to do without. View the columns and boxes as you would any trading chart and you will see the additional information is indispensable. It is superior to traditional charts in many ways, but the most obvious is that volume is in each Footprint™.

A very important distinction of MarketDelta™ is that it's NOT a buy-sell system. MarketDelta™ is instead a cutting edge decision support tool that combines technology and instant availability of trade data with each trade. It then paints this data to the screen in the form what has come to be known as a market Footprint™. By taking advantage of technology and using price AND volume, the Footprint™ provides a very intuitive view of the market. This is the reason why MarketDelta™ only works with electronically traded markets.

Interpreting MarketDelta's™ display and data will require grasping principles and not just memorizing a few rules or setups. Even though the display looks very quantitative with all the numbers and calculations being performed, it is more of an art than science when it comes to applying it. It will be your task to interpret the patterns and data within the innovative display called the Footprint™. Throughout this guide there will be many examples and descriptions of what to look for, but this guide is by no means comprehensive. You are encouraged to apply your knowledge of the markets to the Footprint™ and see what other things you discover.

Those who make the effort to learn this valuable new way of interpreting data will gain a priceless skill that hopefully will allow for further development of your trading capabilities. The Footprint™ will capture and let you see the changes in the market so that you can adjust accordingly, no matter what the market conditions do over time.

### Footprint™ Analogy

It is very important to realize the Footprint™ is simply displaying all trade related data and is NOT some lagging system indicator. A good analogy of why the Footprint™ is needed and why it makes perfect sense to adopt it would be the following: We have all done a task or job one way and thought we knew best on how that task could be accomplished. Then one day we come in contact with someone who is doing that SAME TASK differently and much more productively by using a different technique. You are

amazed that you didn't think of doing it that way and immediately realize the benefits the new technique provides. However, you also realize that to master the new technique and become as skilled as the other person will take time and effort. Regardless of the effort needed, you fully realize that to be competitive and productive you must adopt the new technique. You also realize that if you are not to adopt the new technique, others that do adopt will have an edge (advantage) over you. This little story sums up how the other charting types compare to the Footprint™ and why it will be important for the success of traders to adopt and integrate the Footprint™.

Trading requires making a decision based on all available information. Current charting methods are not giving all this information in an intuitive way for you to make quick, informed decisions. Chart types such as line, bar, candlestick, etc. are limited in the information they can provide. Granted, they do a good job of showing a picture of price but that is what they were created long ago to do.....just show price. With advancements in technology, electronic markets have come into being and with electronic markets comes the ability to send out all the trade information at once. Traditionally with non-electronic markets volume would not be known until possibly the next day. By that time it is not of much use for short term traders. Exchanges now send all this information with each trade as it occurs and give us the ability to present this "newly discovered" data in much more efficient and useful ways. Ask any database expert and they will tell you it's not what data you have but how you are able to put that data to use. The Footprint™ does just this: puts the data to use for traders in a very readable and intuitive display.

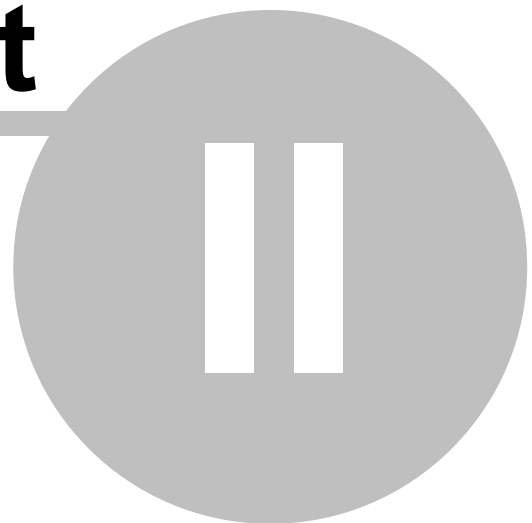
The Footprint™ can't predict the future, but then nothing can. What it can do is help you to understand the present in today's electronic markets. And if you understand what's happening now, in the present, you can make better decisions about what might happen in the near future.

Traditional charts are one dimensional where the Footprint™ is multi-dimensional. This is because each data point (price) in the Footprint™ contains not just price alone, but also volume and a dynamic color which is determined by our buy/sell pressure algorithm. This algorithm simply classifies whether the trade occurred on the bid or ask. With all this additional trade data at each point, new intra-column (bar) patterns emerge that you previously haven't noticed because it simply wasn't presented to you. Technology is what makes this all possible. So jump on board and begin using what the professionals are adopting each and every day as the default chart for the next generation of traders.



# Part

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## 2 Anatomy of the Footprint

### 2.1 Anatomy of the Footprint

The ebb and flow of price movement is presented by the up and down motions of Footprints™. Inside the Footprint™ are individual pieces of market information. The different names of the Footprints™ are Bid / Ask, Delta, Volume, and Bid / Ask Strike. Each is unique in the information it provides and explained in detail individually throughout this chapter.

The market leaves its trail every time a trade is made. The Footprint™ is what MarketDelta™ creates to follow the trail that is left behind. Market information is placed in these Footprints™ and set to display in conjunction with price action. This Footprint™ chart, along with the valuable market information, presents a very simple interface, allowing the trader to be nimble and quick to react in any trading condition.

#### Benefits of Footprint™

- Have the unique perspective of gauging each trade and seeing who has more conviction, buyer or seller.
- Scroll back in time and see past Footprints™.
- Graphically see buy and sell pressure enter the market in real time or look back during the session to see when and how it hit.
- Graphically see relative number of buyers/sellers entering the market.
- Real time updating of comprehensive trade information.
- See how much volume it took to turn the market.
- See how many orders were involved.
- See what side of the market the trade occurred on.
- Follow the aggressor as they attempt to move the market.
- Identify clusters of support and resistance which become evident through areas of volume and liquidity.
- Confirm breakouts and other traditional chart patterns using volume.

**Footprint™ Resolution** – Allow you to zoom in/out on the Footprint™ area. This helps you to gain different perspectives with regard to time and how price action occurred. There are four resolutions. Two show a numeric form of Footprint™ and two show a non-numeric Footprint™. The two numeric forms also provide the ability to have statistics at the bottom of each column. Footprints™ can provide a market memory that is always a mouse click away.

**Price Action Based Footprint™** – Based on the point & figure model, this view allows one to follow the ebb and flow of volume with respect to price movement but with much more detail and information. There are four buttons to choose from: The first allows you to customize the price reversal (column shift) setting. The others are preset to 1, 2, or 3 price reversal (column shift) setting for quick changing.

**Time Based Footprint™** – View the Footprints™ in columns with respect to a specified time period. The first button (clock) allows you to customize what time frame you wish to view. The other four, 1, 5, 15 and 30 are preset for quick changing.

**Footprint™ Type** – This is the information within the Footprint™ view (**Bid / Ask, Delta, Volume, Bid / Ask Strike**). Read each description throughout this chapter to fully understand and see graphically the difference between these four types of views.

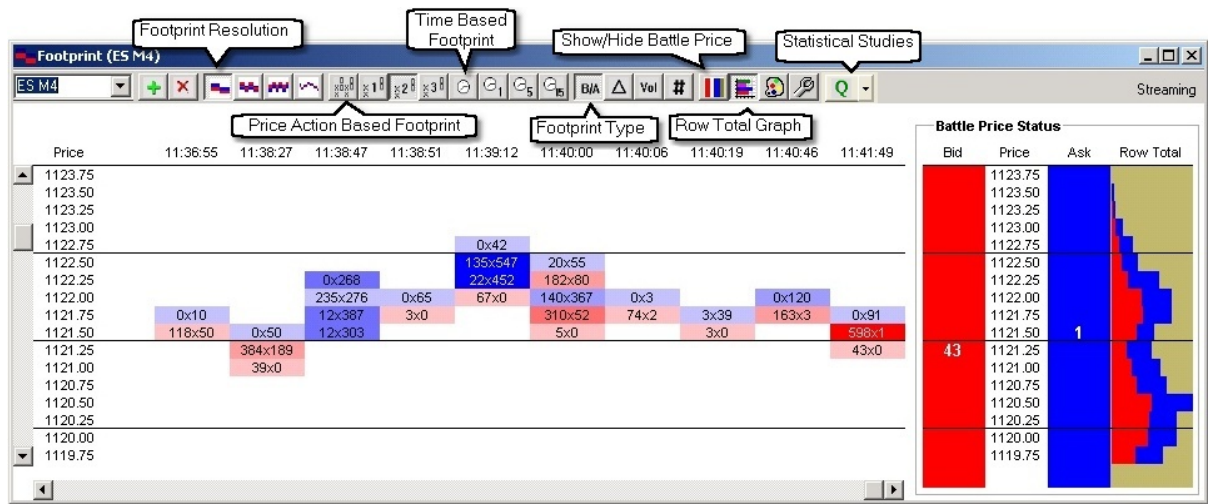
## Anatomy of the Footprint™

When left clicking on a Footprint™ cell, four items are uncovered in pop up form.

1. Date
2. Time (last trade time)
3. Price (box in conjunction with last traded price)
4. MarketDelta™ information (Bid / Ask, Delta, Volume or Bid / Ask Strike)

Color gradients can be used to signify thresholds of activity. They are set by clicking on the color palette button at the top of the Footprint™. A threshold is set to represent a line the market information must cross in order for color to change to a different shade. This threshold is a number that Footprint™ information needs to cross for the proper color gradient to display. There are four different thresholds (color gradients) that will help traders be aware of the intensity the market is undertaking. The purpose is to allow traders to concentrate on trading and become accustomed to the threshold that is important to them. Traders will gain experience in the use of the chart and be alert when their knowledge is called to attention by a signifying change in market activity.

The ticks per handle button (wrench icon) is used to set how you want to display the price scale. This in turn will be the price increment from once price to the next. For most instruments you will want it set to the minimum tick increment. Example: Stocks would be 100 which would represent 100 ticks per \$1. Emini S&P® would be set to 4 because it trades in quarters. Please refer to the MarketDelta™ user manual, Help or [www.marketdelta.com/links.aspx](http://www.marketdelta.com/links.aspx) for more possible settings for other instruments.



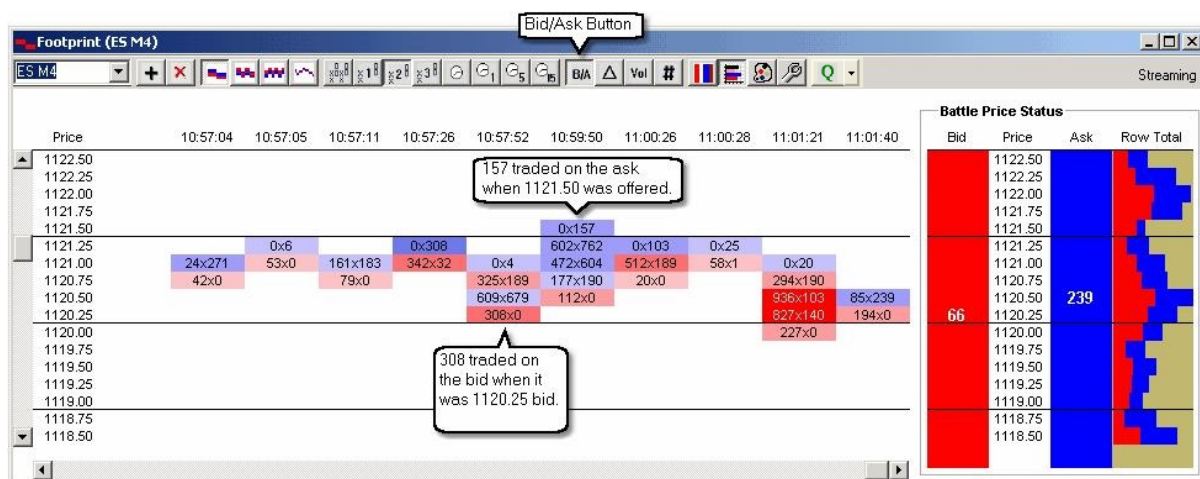
## 2.2 Bid / Ask Footprint

**Bid / Ask Footprint™** – Displays the number of shares or contracts that traded on the bid price and the number of shares or contracts that traded at the ask price in real time. As the bid and ask change with price, the Bid / Ask Footprint™ adjusts accordingly. They display as (cumulative BID traded quantity x cumulative ASK traded quantity). (Example: 1000 x 400).

All the Footprints™ move from right to left across the screen. With each Footprint™ type you have the ability to scroll back in time to view the previous price action or recall how much market activity took place.

- Click the Bid / Ask button at the top of the Footprint™ window to view.
- This Footprint™ will help you keep track of the market action as it happens.
- See exactly how bid traded volume and ask traded volume affect the market at each price.
- Follow volume and momentum as it happens by setting the color shading to your preference.
- Footprint™ shows whether the volume was on the bid side or the ask (offer) side.
- Scroll back in time and see what happened to help get caught up to the present.
- See how many shares (contracts) traded.
- See how many orders were involved.
- See what side of the market the trade occurred on.

This chart, along with the valuable market information, presents a very simple interface, allowing the trader to be nimble and quick to react in any trading condition. You can quickly select which chart you want to see by just clicking the button at the top of the Footprint™ panel.

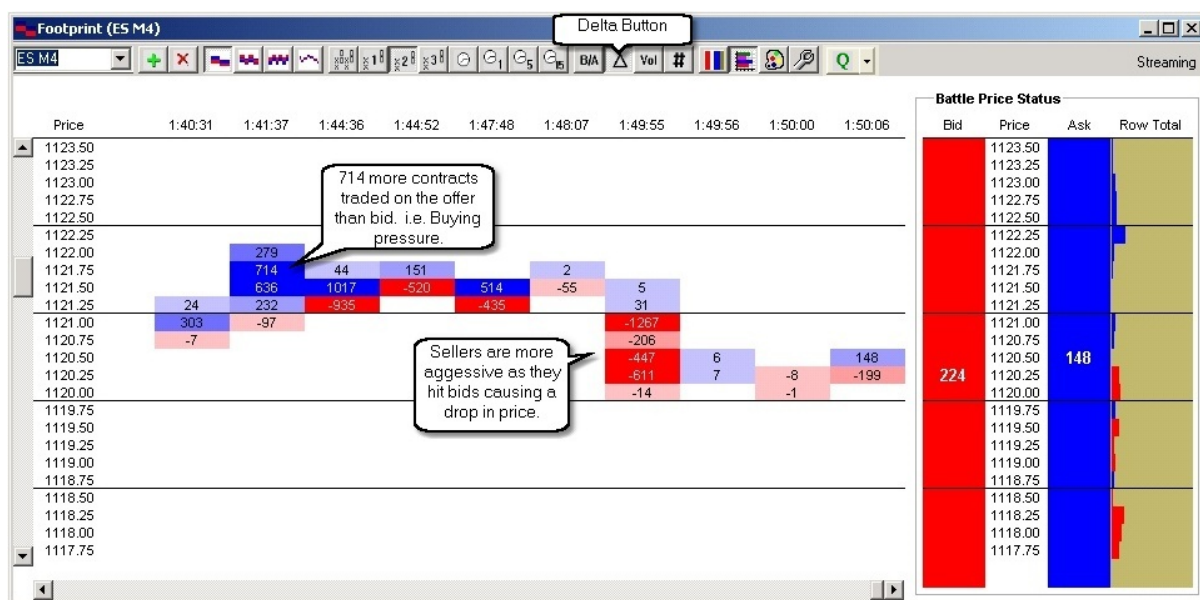


## 2.3 Delta Footprint

**Delta Footprint™** – Displays a positive or negative number. A negative delta value represents how many more shares/contracts were sold on the bid as a result of the seller being more aggressive and hitting the bid than contracts bought at that price while it was offered. A positive delta value represents how many more shares/contracts were bought on the ask (offer) as a result of the buyer being more aggressive and taking the ask (offer) than contracts sold at that price while that price was bid. Delta is the term we use to describe the net difference between the quantity traded on the ask versus the quantity traded on the bid. Delta Footprint™ is used to give a measurement of buying and selling pressure at each traded price in real time. It also helps to quantify who, buyer or seller, is more aggressive (in turn producing pressure) as price fluctuates.

- Click the Delta button on top of the Footprint™ panel to view.
- Gives a true sense of buy and sell activity at each price.
- Very advantageous to see price runs sequentially. Begin to realize when a current run is running out of fuel.
- Know when a current price run is gaining momentum.
- Know when and where the buyers are accumulating and the sellers are distributing.
- See the prices where aggressive selling or aggressive buying kicked in and moved price.

The Row Total graph is based on an absolute scale, meaning the greater the absolute number is the longer the bar. However, if the bar is red it represents a negative Delta and if it is blue it represents a positive Delta. Left clicking on the bar quickly shows the value of the bar.



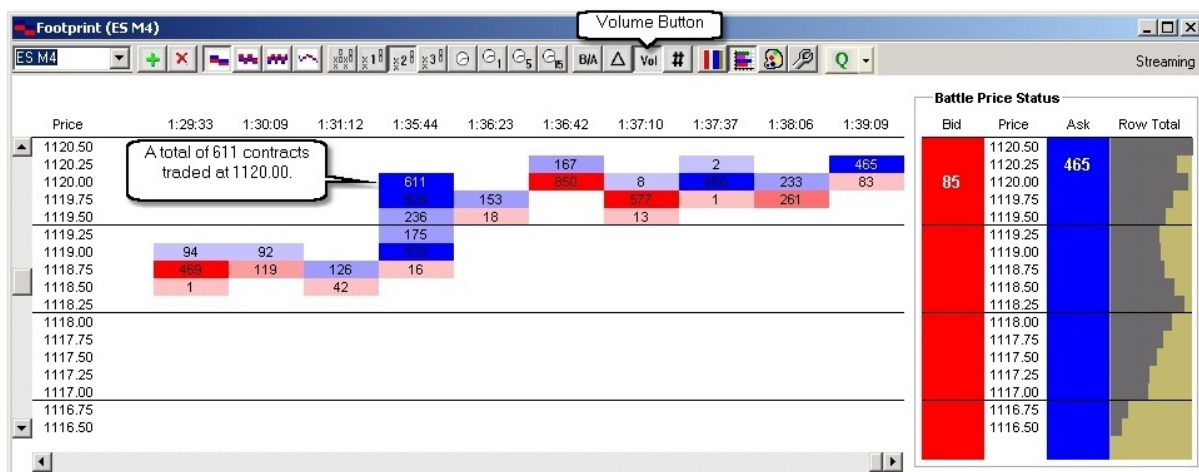
## 2.4 Volume Footprint

**Volume Footprint™** - Displays the total volume traded at each price, regardless of whether it was bid or ask. This is helpful in showing where large volume occurs during trading. The calculation would be the bid traded volume + the ask traded volume = **Volume Footprint™**. Using the Bid / Ask Footprint™ example (1000 x 400), the Volume Footprint™ would be 1400. This will never be a negative number because it is the sum of traded volume.

- Click the Volume button at the top of the Footprint™ panel to view.
- Know when and where active trade occurs.
- Begin to see Volume Clusters develop.
- Know how big of a stand traders are willing to take.
- You won't be fooled by orders that look like they traded but really didn't trade.
- Develop a feel for your market by recognizing when volume is picking up and when it's not. Similar to noise on the trading floor, when applied to electronic markets, this tool will let you know how and where the volume trades.
- Know how much traded at extreme prices. This is very helpful when prices are capitulating.
- See pockets of liquidity. These provide potential support and resistance points.

The **COLOR** of the volume Footprint™ is determined by the delta value of that Footprint™. This means if a particular Footprint™ has a positive delta it will be some shade of blue. If it has a negative delta it will be some shade of red. The **SHADE** of the volume Footprint™ is determined by the volume thresholds set under the color settings button. In the figure below, a total of 611 contracts traded at 1120.00. It is blue because it has a positive delta and it is the darkest shade of blue because it is greater than the

highest threshold setting that has been applied. The thresholds can be changed by clicking the color palette button at the top of the Footprint™ window.

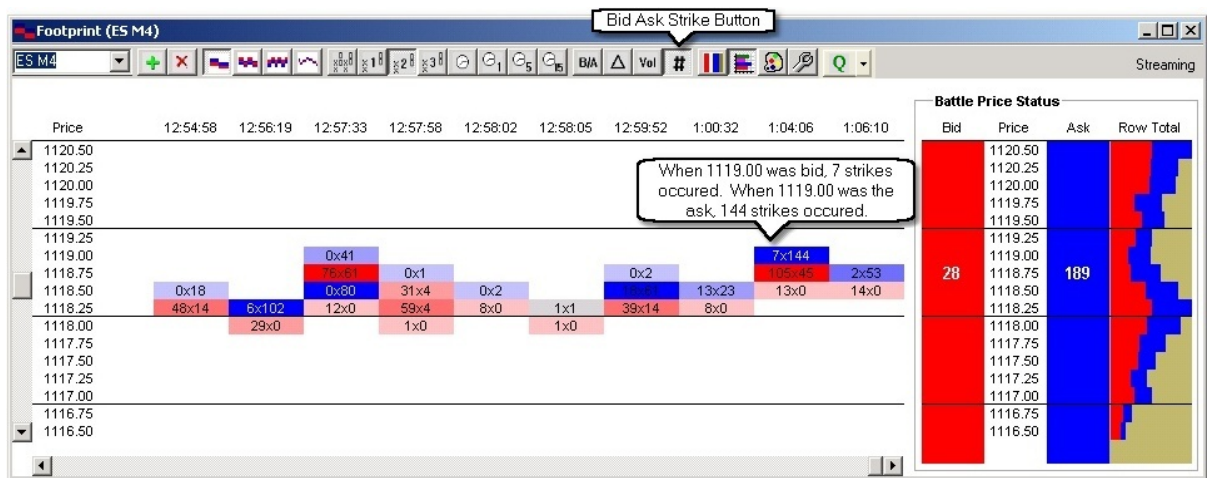


## 2.5 Bid / Ask Strike Footprint

**Bid / Ask Strike** - This displays the number of strikes that occurred on the bid and the number of strikes that occurred on the ask. Strike is synonymous for trade. When two orders meet they make one trade. A strike is not the quantity traded. By comparing Volume Footprint™ to Bid / Ask Strike Footprint™, a trader has the ability to see how many trades (strikes) occurred for that amount of volume. Please note, different data vendors determine strikes differently.

- Click the Bid / Ask Strike button at the top of the Footprint™ panel to view.
- This Bid / Ask Strike Footprint™ will help you track areas of high interest among many participants.
- See when volume is created by many players scrambling to get in or out of a trade.
- See when volume is created by just one or very few large players. These players may be setting a trend.





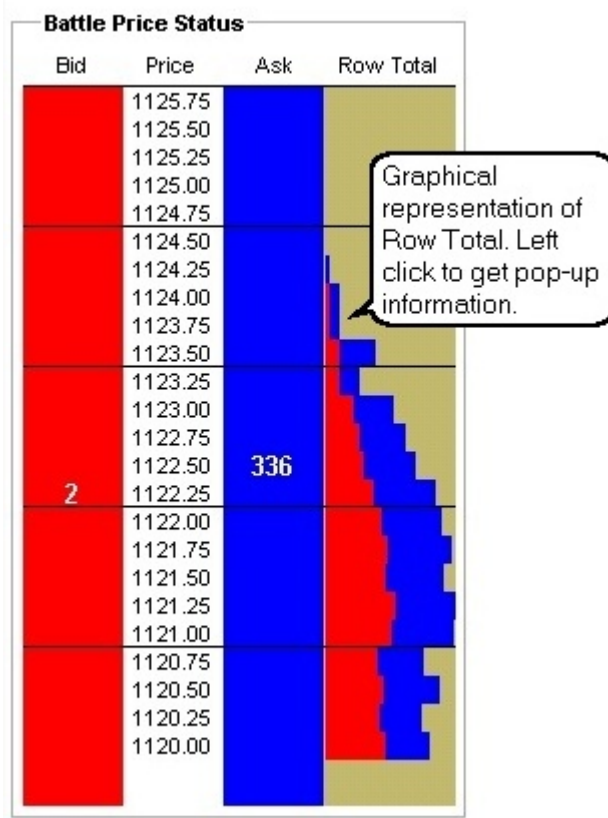
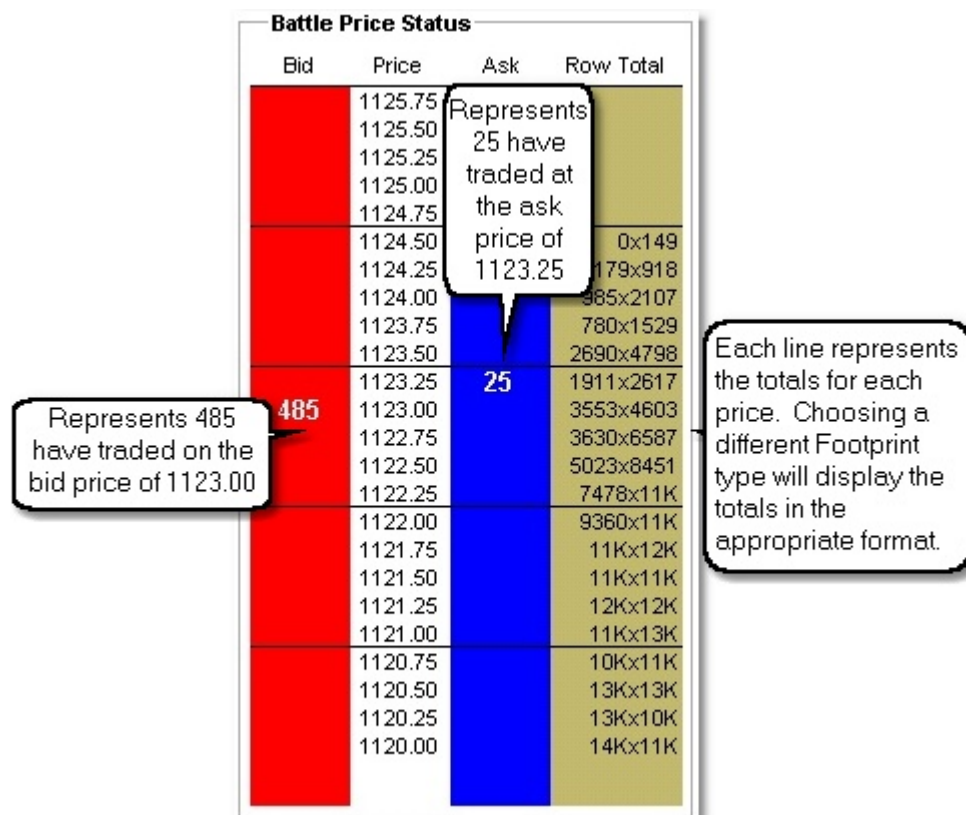
## 2.6 Battle Price Line

**Battle Price Line (BPL)** – The primary portion of this panel displays the bid traded volume, price, and ask traded volume, respectively. The BPL allows you to watch as the trades occur on the bid or the ask in a cumulating fashion. The instant a new bid or ask price is traded a new cumulative volume count will begin at that price. It will give you a sense of understanding, tick by tick, price by price as to the behavior of the market. The order book can't do this for you because you can't tell when orders are being canceled versus traded.

Imagine watching the bid available quantity as it seems to get chewed away but nothing is happening in the bid traded volume. You now fully understand the power of the BPL. You don't get fooled by fictitious volume, pulled orders, or the flicker of the order book.

Because the BPL shows the number of shares/contracts traded on both the bid and offer, you will oftentimes see the bid quantity traded and the ask quantity traded on the same price line. This happens when the last bid (ask) price becomes ask (bid) price without a new ask (bid) price trading. Looking below, its 1123.00 bid and 1123.25 ask because we can see volume is trading at those prices. If the next price to trade is 1123.25 and it trades on the bid side, it will be horizontal to 25, which was at the last traded ask price.





## 2.7 Row Total Distributions

Row Total is to the right of the **Battle Price Line** and represents the sum of traded volume or strikes for all Footprints™ at a specific price within a trading sessions range. At any one time MarketDelta™ displays one of four representations of Row Total. **Bid / Ask**, **Delta**, **Volume**, **Bid / Ask Strike**.

**Bid / Ask** Total - Totals all the quantity traded on the bid and all the quantity traded on the offer for a specific price throughout the session. This will be displayed when the Bid/Ask button is selected at the top of the Footprint™ panel.

**Delta** Total - Totals all the delta's at a specific price throughout the session. This will be displayed when the Delta button is selected at the top of the Footprint™ panel. This will represent the net buy or sell pressure throughout the session for a specific price in the sessions trading range.

**Volume** Total - Totals all the quantity traded at both the bid and ask for a specific price throughout the session. This will be displayed when the Volume button is selected at the top of the Footprint™ panel.

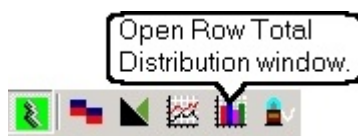
**Bid / Ask Strike** - Total number of trades at a price either on the bid and on the ask throughout the session. This will be displayed when the Bid/Ask Strike button is selected at the top of the Footprint™ panel.

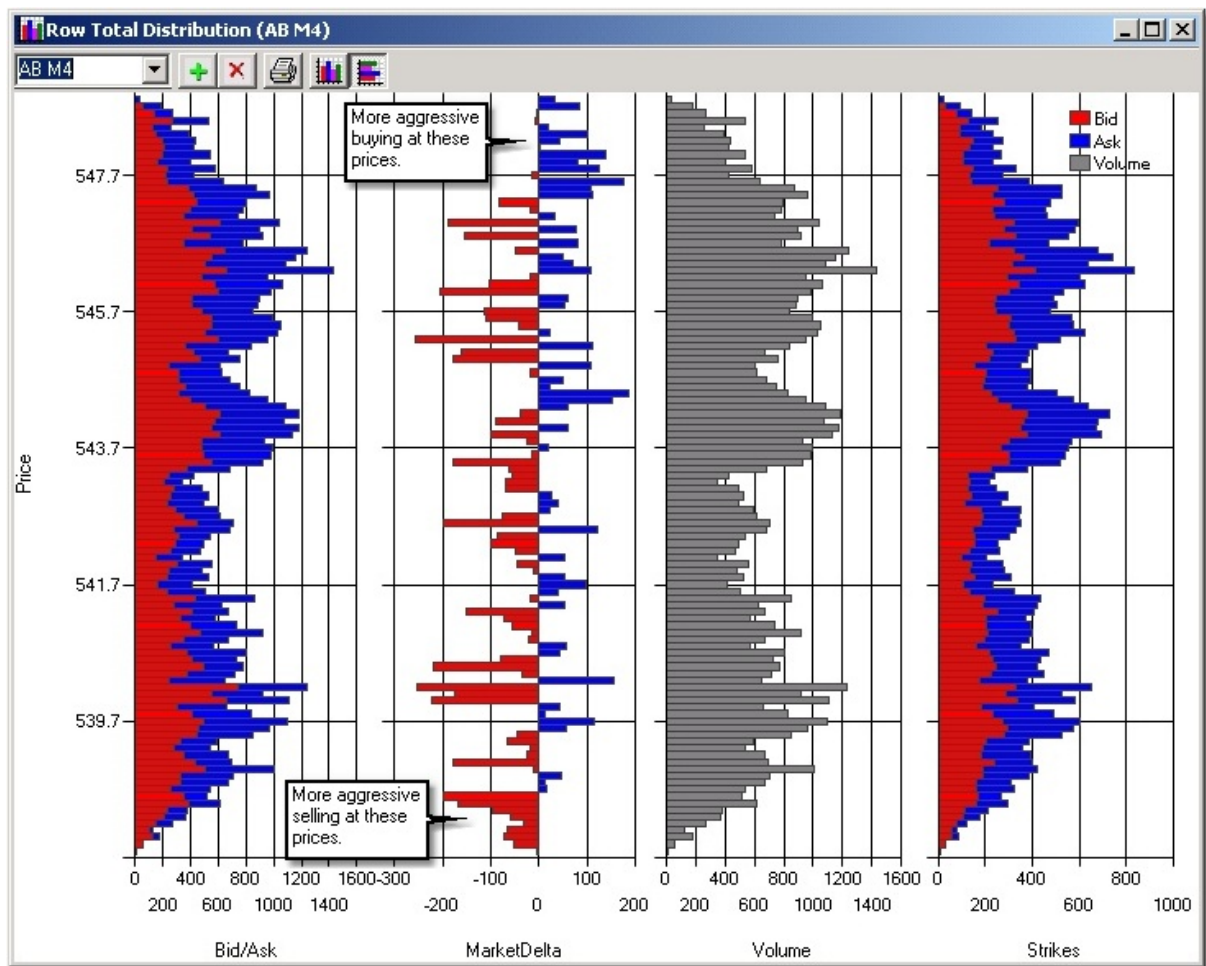
These figures continue to calculate all session no matter what Footprint™ is selected from the Footprint™ panel. Row Total can also be displayed in graph form by clicking the graph icon below.



Bid/Ask Total	Delta Total	Volume Total	Bid/Ask Strike Total
Row Total	Row Total	Row Total	Row Total
3105x5280	2175	8385	223x269
2508x2137	-371	4645	190x154
979x2024	1045	3003	82x128
607x3359	2752	3966	66x250
1419x5275	3856	6694	98x269
6070x8445	2375	14515	425x561
6334x5189	-1145	11523	676x493
5414x4837	-577	10251	451x321
1389x2104	715	3493	176x146
469x1411	942	1880	58x90
576x2617	2041	3193	57x187
504x1068	564	1572	66x112
576x2131	1555	2707	34x107
1213x3755	2542	4968	97x332
3453x5901	2448	9354	180x346
3977x5668	1691	9645	326x338
2409x6193	3784	8602	215x332
5962x7809	1847	13771	439x486
6440x8675	2235	15115	467x401
5766x9140	3374	14906	336x619
8783x7423	-1360	16206	690x337
3686x4536	850	8222	300x254
3393x3505	112	6898	264x227
3240x4160	920	7400	338x267

You can also graph of the row total in a separate window by clicking the Row Total Graph icon on the main toolbar. The histogram takes the above columns of numbers and plots them in a traditional histogram either vertically or horizontally. By plotting this data graphically the data jumps out at you for quicker interpretation and better understanding of past trade distribution. All data in this graph will update dynamically, keeping you informed of any sudden changes in market sentiment at each price. If you are using an application that has integrated the Footprint™ technology you may not have the row total distribution window available.





## Applying Row Total

**Bid/Ask Histogram** - Shows the total volume at each specific price and then classifies it between bid traded volume and ask traded volume. The bid traded volume is represented in red and the ask traded volume is represented in blue.

**Delta Histogram** - Net buying or selling pressure at each price based on volume occurring on the bid or the ask. It is calculated as the difference of all volume occurring on the bid and all volume occurring on the ask at each specific price. Above zero (blue bar) represents more buying, below zero (red bar) represents more selling and zero represents equal buying and selling at that price.

**Strike Histogram** - Shows the total number of strikes (matched transactions) at a price based off of the data received from the data provider. Each trade is then classified as a trade on the bid or a trade on the ask. Trades on the bid are shown in red and trades on the ask are in blue.

**Volume Histogram** - Shows the total volume traded at a specific price. Viewing this gives an idea of what prices are important to traders because more volume is transacted

at those prices.

Refer to the section entitled Row Total Distribution Strategies for further application and strategies of this feature.

## 2.8 Quantitative Analytics

Clicking the "Q" button at the top of the Footprint™ window will provide a drop down of analytics which can be applied to Footprints™. The analytic will be applied to the bottom of each Footprint™ bar.

### Quantitative Analytics Definitions

**Delta** - Total delta value for each bar. A positive delta represents more aggressive buying (accumulation) while a negative delta represents more aggressive selling (distribution). The arrow is placed to provide a better visual que when looking back.

**Strength** - This is an attempt to normalize what is going on within each bar by putting a standard value for each level of color represented. For instance, the darkest blue Footprints™ will receive a value of positive four (+4) and the darkest red will receive a negative four (- 4). The lightest blue will get a value of +1 while the lightest red will get a - 1. The strength value is summed for each bar. View the graphic below to see how each color threshold would be weighted.

**Customize Footprint Colors for ES Z4**

Threshold values for: Bid/Ask

	Red	Blue	Strength	when Delta is (+/-)	Min Value	to	Max Value
- 1	Bid Color	Ask Color	+1	when Delta is (+/-)	0	to	99
- 2	Bid Color	Ask Color	+2	when Delta is (+/-)	200	to	399
- 3	Bid Color	Ask Color	+3	when Delta is (+/-)	400	to	799
- 4	Bid Color	Ask Color	+4	when Delta is (+/-)	800	to	Infinity

Buttons: Reset All, OK, Cancel

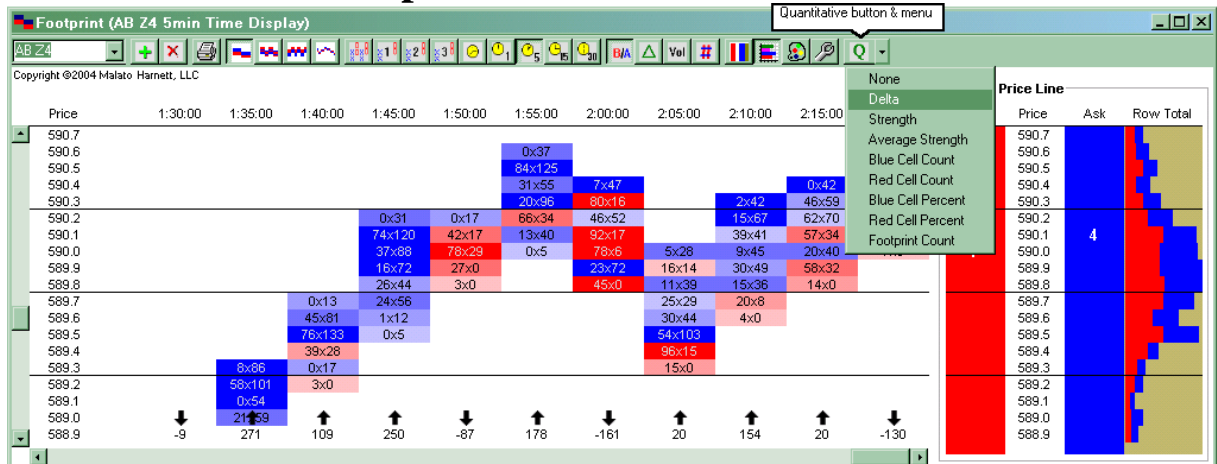
**Average Strength** - Calculates the average strength value from each cell in a particular bar.

**Blue/Red Cell Count** - Simply counts the number of blue or red Footprints™ present in the bar.

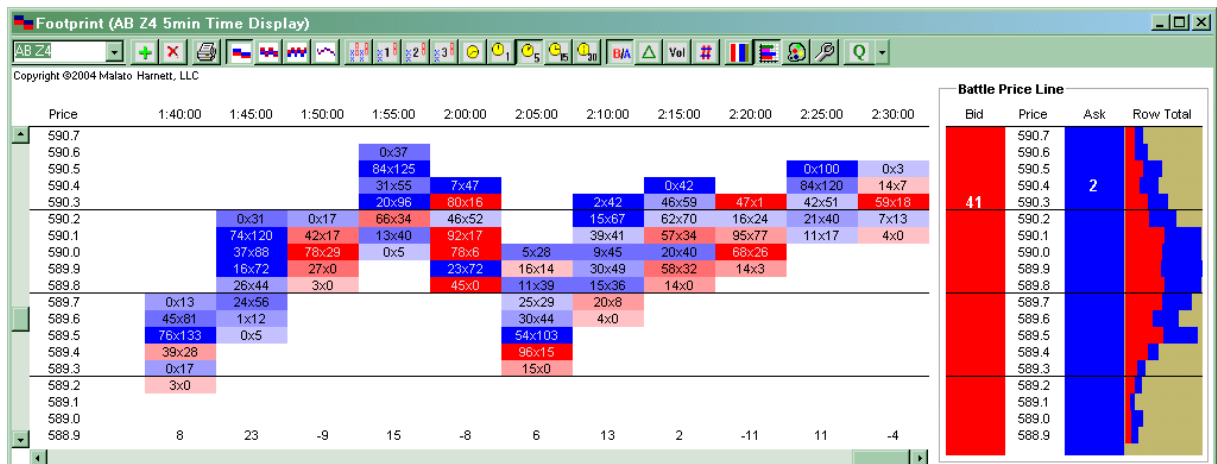
**Blue/Red Cell Percent** - Gives the percentage of blue or red Footprints™ present in a particular bar.

**Footprint™ Count** - Total number of Footprints™ present in a given bar.

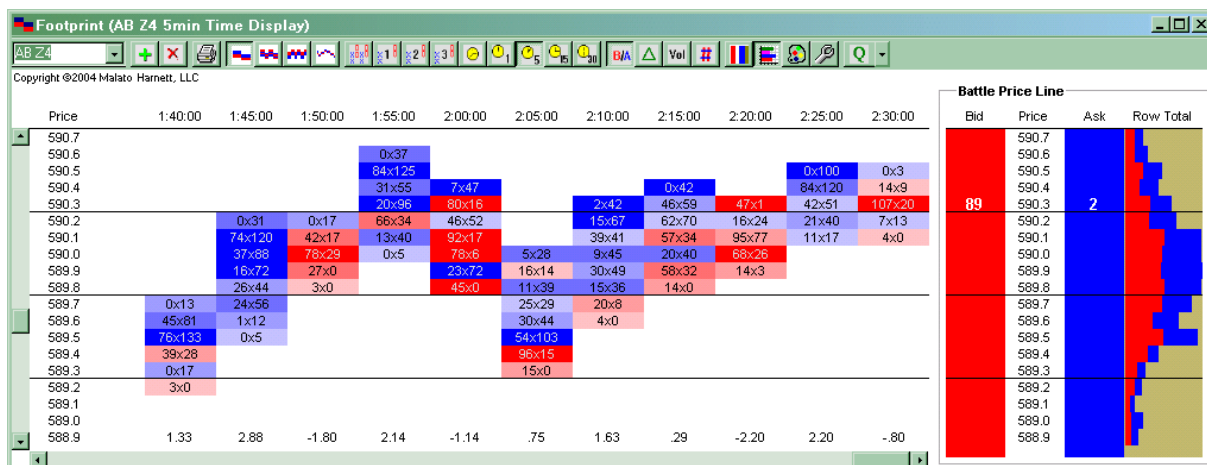
**Examples of each are found below:**



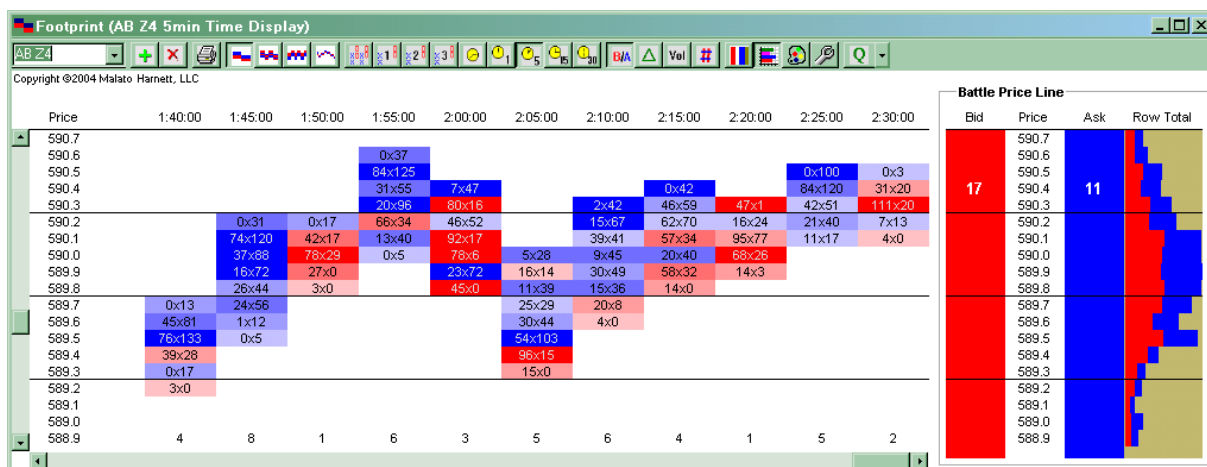
**Delta**



**Strength**

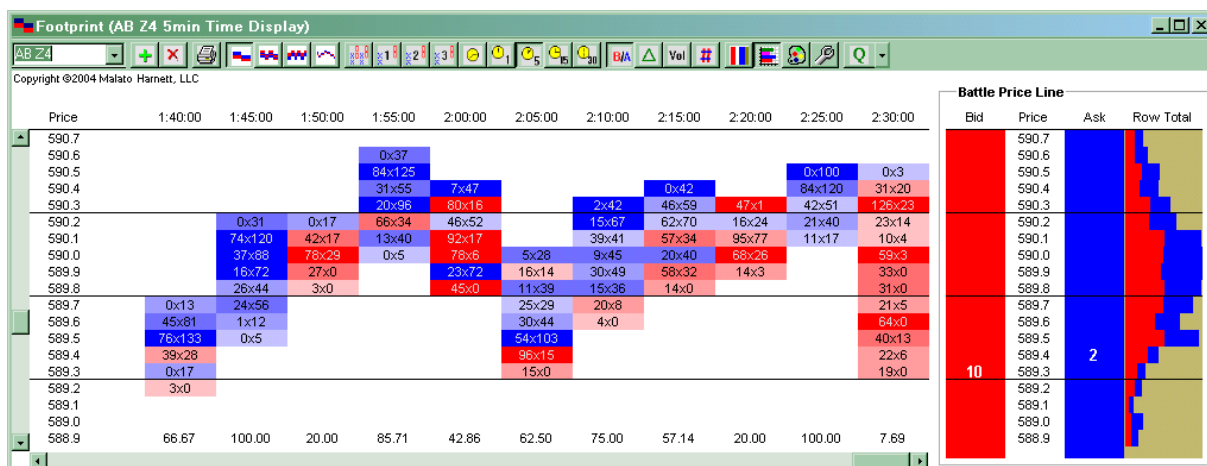


## Average Strength



## Blue Cell Count

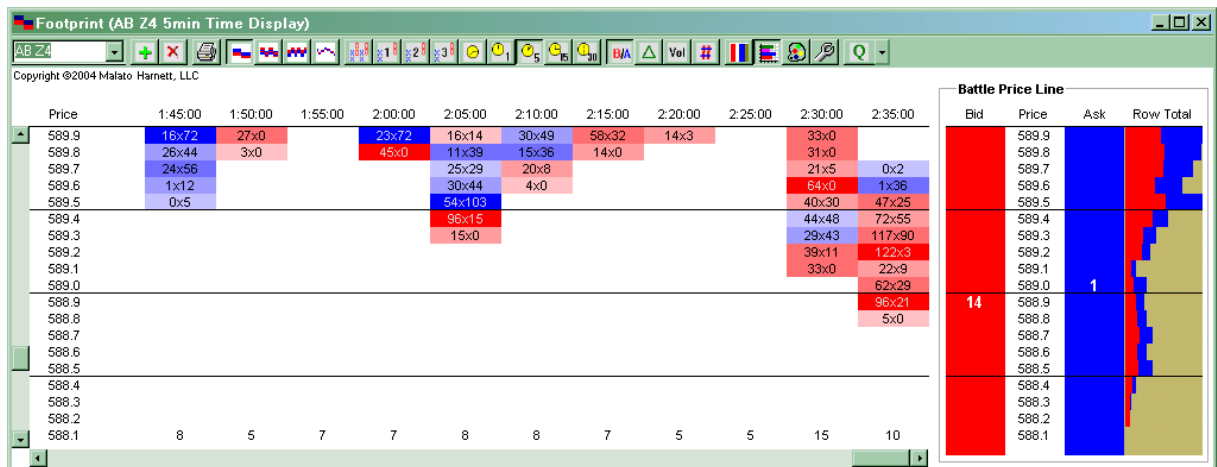
(can view red cell count by selecting red cell count)



## Blue Cell Percent

(can also view red cell % by selecting red cell percent)

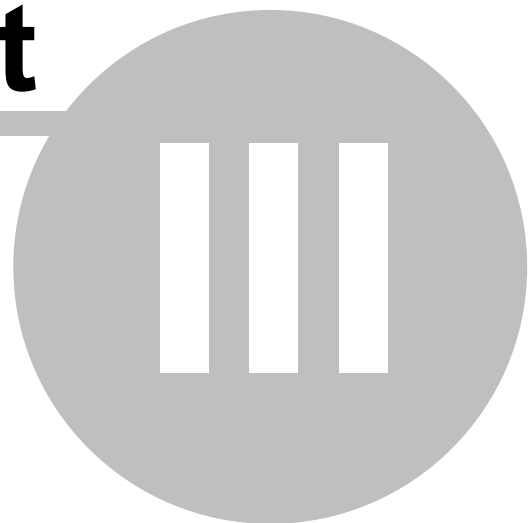






# Part

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## 3 Questions & Answers

### 3.1 Common Questions & Answers

#### 1) What is the benefit of having another chart pattern to help analyze trade data? Don't we have enough types of charts out there already?

This is a very good question and a very easy one to answer. Let me start by asking you a question - Why do you think most professional traders use candlesticks instead of standard bar charts? We believe it is simply because candlesticks are easier to look at and extract the necessary information more quickly. Red bar is a down bar; Green bar is an up bar; The colors and shapes of the bars jump out at you and provide for an easier interpretation of the data. The same analogy applies to the Footprint™ and the candlestick or any other type of chart. The Footprint™ is superior to that of other types of charts because it represents each price AND volume AND whether or not it occurred on the bid or offer. It simply provided more of the trade information. The additional information it provides is volume, number of trades, and buying/selling pressure calculated using price and volume. Think of each Footprint™ bar as you would a candlestick with volume shown at each price or buy/sell activity. It truly provides a more intuitive way to view the market. Also, just as candlesticks have unique patterns (doji, hammer, etc.), so does the Footprint™ because of this additional information and the way it is displayed.

#### 2) I understand that using MarketDelta™ involves screen time to observe the patterns. I suspect many, like myself, tend to respond to that with "what exactly should we be looking for?" Can you provide a short checklist of the primary things we should be cycling through as we observe the MarketDelta™? In other words, for a beginner with MarketDelta™, what kind of mechanical process of observation would instill useful skills and lead to mastery.

- Pay attention to the edges of Footprints™ as price trends and rotates. You are looking for the light and dark boxes. Dark blue boxes at the top of a range imply heavy volume resulting from buyers being aggressive and buying the offer. Dark red boxes at the bottom of a range imply heavy volume resulting from sellers being aggressive and selling the bid. Light colored boxes at the edges imply less conviction and a possible reversal.
- Monitoring the volume distribution keeps you in tune with where all the price action is occurring.
- Monitoring the delta distribution keeps you informed of which prices are more aggressively challenged by the buyer and seller.

#### 3) Are there any specific patterns you look for?

The Footprint™ can be viewed in either traditional time based charts or price action based (hybrid point & figure). Because of this, the **chart** patterns will fundamentally be the same as what you are used to viewing. However, the unique feature of the

Footprint™ is that volume is contained **with** price. Because of this, unique patterns will develop that were previously undiscovered. *Volume Clusters* will develop, and given the color shading capability, allow you to view whether more net buying or selling is occurring in a specific cluster. This is also true for a trending market. Because volume is contained within each Footprint™, you are able to follow strength as price moves in the direction of the trend. Refer to the strategies section of this guide for more ideas.

**4) How do you interpret the MarketDelta™ at predefined levels of supply or demand (for example high volume points, floor pivots, etc) in order to determine whether trade is being facilitated?**

Each trader has a different style and time frame, but personally I will calculate where today's pivots and high volume points are and then key in on what type of trading is occurring in the Footprint™. If price rallies up to an important area of resistance you can watch the volume Footprint™ to see if there is active trade at that point and who is more aggressive at that point, buyer or seller. The key behind MarketDelta™ is the ability to monitor supply and demand at each price as the market rotates back and forth. Having the color settings set so you know what they mean is crucial to understanding the Footprint™. Personalize the Footprint™ so you begin to recognize what they are telling you about supply and demand. We recommend setting the color settings for a particular instrument so that there is a nice representation of all color shades. You don't want to see all dark colors or all light colors. Set them so you have a nice variation and when the Footprint™ is darkly shaded, it will represent high activity.

**5) Are there any noticeable differences in rising markets versus declining markets?**

The most noticeable difference will be more blue Footprints™ in a rising market and more red Footprints™ in a declining market. Another usually noticeable difference will be in the Row Total chart area or the Row Total Distribution chart. You will notice more positive (blue) bars in a rising market and more negative (red) bars in a declining market for the Delta distribution. On a strong trending day you will notice mostly blue bars for the Delta distribution for up days and mostly red bars for down days.

**6) I'm used to watching candle charts in several time frames (2, 3, 4 and 5min) in order to find entry points. Is it feasible to drop the candles all together in favor of MD, or am I better off integrating the use of candles and MarketDelta™. The downside of course is that's an awful lot to look at.**

We are recommending using MarketDelta™ as a complimentary tool at first. If you begin to feel comfortable enough with just using MarketDelta™ then you can make

the shift when you are ready. The Footprint™ is a complimentary new chart that will aid in your analysis of price/volume interaction.

**7) Basically, the MarketDelta™ has several equivalent ways to display the same data. However, there appear to be important nuance differences. What trading situations or preferences would dictate the use of the different Footprint™ display modes?**

There are four different types of Footprints™. Bid/Ask, Delta, Volume, and Bid/Ask Strike. Each offers a little different way of viewing the market from the other.

**Bid/Ask** – The primary benefit of this Footprint™ is that it gives you very detailed information. It is constantly showing order flow to the bid and order flow to the offer in the form of **B**id traded volume x **A**sk traded volume. For somebody who is very good mathematically and a quick thinker, they would be able to gauge the Delta and Volume Footprint™ values from just looking at the Bid/Ask Footprint™. This is because the Delta Footprint™ is simply  $A - B$  and the Volume Footprint™ is  $B + A$ . The benefit the Bid/Ask Footprint™ gives the trader is the volume trading on the bid or at the offer during any given time.

**Delta** – The primary benefit of the Delta Footprint™ is its ability to give the trader a definitive buying pressure or selling pressure gauge at each specific price. The Delta is calculated using the following equation: Ask traded volume – Bid traded volume. Viewing the Delta Footprint™ will show a trader which side of the market is showing more aggression, thus the potential to move in the direction of aggression. One thing the Delta does not do is show you the total volume traded at that price. Example: The delta could be 50, meaning 50 **more** contracts have been bought as a result of the buyer being more aggressive and lifting that price when offered. However, the total volume could actually be 2050, meaning  $1000 \times 1050$ . You must be aware that delta is just showing you net buying or selling pressure at price. A great advantage is that when delta is large (either a large positive or large negative) you know there was very lopsided trade at that price and possibly indicating institutional activity at that price.

**Volume** – The primary benefits of the Volume Footprint™ are that you now know volume at each price as the market rotates back and forth. Traditionally traders have used volume histograms on time based charts to follow volume; however this doesn't show at what price all the volume was transacted. It's very critical to know if most of the volume on a five minute bar was done near the high or low of the bar. In a rising market, if a majority of the volume is done near the high of the Footprint™ bar this could signal follow through as price continues to rally.

**Bid/Ask Strike** – The primary benefit of the Bid/Ask Strike is that it shows order flow with respect to the number of transactions occurring on the bid and ask at each price. Large values for this Footprint™ would represent high participation by many different traders as they scramble to get their order filled.

Our findings have been that each Footprint™ provides unique information and that some traders will prefer one over the other. We recommend experimenting with each of them and find which one fits you best. Start with understanding what you are looking at. Volume Footprint™ is a good starting point because we are all familiar with volume. Each trader will benefit differently as they gain experience and increase their abilities. Most important is to be patient as you learn this new chart form. Nothing of benefit comes easy, and the hard work will pay off as you spend time with this cutting edge analytics trading tool.

**8) What is the value of Time-Based versus Price-Action-Based Footprints™? Is it simply a matter of the correspondence to the price bar charts versus the point and figure charts?**

The general answer is "Yes" to your question. However, the important thing to keep in mind with the Footprint™ chart is that it includes volume at each price. Point and figure charts do a very good job of showcasing volatility and support & resistance. Using the point and figure chart within MarketDelta™ and having the ability to quantify where volume is trading at these important levels is a huge advantage over standard point and figure charts and will allow a trader to anticipate breakouts with greater accuracy.

The time based chart is enhanced within MarketDelta™ by allowing a trader to see activity with respect to time. Traditionally they looked at candle or bar charts and maybe a volume histogram to gauge activity. The Footprint™ breaks that bar up into boxes representing price and tracks the volume at that price. This allows the trader to see where in the bar the volume picks up or backs off. Seeing this will allow the trader to anticipate potential areas of support and resistance and better follow order flow.

# Part

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# IV

## 4 Footprint Patterns & Strategies

### 4.1 Footprint Patterns & Strategies Overview

Here are a few things to keep in mind as you study the following patterns and strategies.

#### General Rules for Interpreting Price & Volume

Volume should increase (grow) in the direction of the trend. In an uptrend volume should increase as price moves higher and decrease (shrink) as price retraces. In a downtrend volume should increase as price moves lower and decrease when price bounces. Pay special attention to how the Footprint™ communicates this principal through the use of color and color patterns.

<u>Price</u>	<u>Volume</u>	<u>Market</u>
Rising	Increasing	Strong (Up)
Rising	Decreasing	Weak
Declining	Increasing	Weak (Down)
Declining	Decreasing	Strong

- Each pattern has been classified as to what type of market strategy it best fits.
- Just because a pattern is classified under one type of strategy doesn't mean it can't be applied to other strategies.
- All these examples can be applied in any time frame. Scalpers can take each of the examples and just apply it on the micro level. The reverse is true for longer term traders.
- Learn the trading principles that are exploited in these examples. Don't just memorize the example. LEARN them. Trading is not a one time test. There are no shortcuts. You will have to continually re-apply your knowledge, ideas, and abilities each and every day.
- Begin trying to understand why the market developed the way it did. What is transforming to eventually bring about the pattern? The benefit is recognizing the forming of the pattern taking place before your eyes. The Footprint™ will help you build the skills needed to recognize moves earlier in development because you are seeing more of the trade information.
- This will build your skills and help to recognize moves earlier in development.

### 4.2 Market Timing

#### 4.2.1 Market Timing

To name a few, MarketDelta™ can be used by traders who like to time entries, exits, follow reversals, and take advantage of breakouts. The Footprint™ provides an

innovative view for market timers using color shading to express buying and selling. Shades of blue represent more buying and shades of red represent more selling at each respective price. Market timers are looking for clues as to what the market will do next in order to take advantage of their knowledge. The goal is to get in on the move early. The Footprint™ gives a unique perspective because it allows market timers to see HOW the price is trading, not just where price is trading. This allows market timers to have the "inside view" of turning points in the market because they are viewing volume with price. The color shading jumps out at you when price begins to move or when they coil up waiting to breakout.

Another way the Footprint™ may be used by market timers is when price moves up to new highs and advertises for selling. The Footprint™ will show whether aggressive sellers are entering the market at the new highs. By displaying red Footprint™ boxes during new high prices, the Footprint™ is advertising selling activity. Think of the Footprint as a big billboard flashing "aggressive selling" or "aggressive buying" when the colors change. Simply put, this would indicate the sellers are becoming aggressive at the highs. Footprints™ light up dark red because the aggressive sellers are willing to throw more volume at the bids rather than posting their offer. In this simple micro pattern the sellers do not want to miss the opportunity to sell new high prices. More times than not, if aggressive selling doesn't enter the market, price will move higher until it brings in a response by the sellers.

#### *Using the Footprint™ to Confirm other Indicators*

The Footprint™ is also used to confirm a signal given from other indicators. An example would be a moving average or moving average crossover. As the signal is being produced from the moving average, look to the Footprint™ to confirm the signal and better time the entry or exit. Stochastic's are another example. These can read overbought or oversold for a very long time, causing big problems when trying to gauge buy and sell opportunities. Using the Footprint™ you can monitor how the market is trading at the overbought/oversold points and confirm whether the market is turning or whether continuation is likely. The idea is to increase the probability that your indicator is giving a correct reading and not a false signal.

One of the most frequent compliments about MarketDelta™ is not how many trades it has put traders into, but rather, how many bad trades it has helped keep them from taking. The reason for this is while your conventional indicators or tools give signals, the Footprint™ gives you the evolving real time view of the market and how it is behaving at those points. It is just another chart, yet not just another chart. It provides the most comprehensive trade information available of any chart form available, thus providing more information for you to make your trades. The Footprint™ is not a leading or lagging indicator. It's job is to present all the data in the most readable manner for you to make trading decisions.



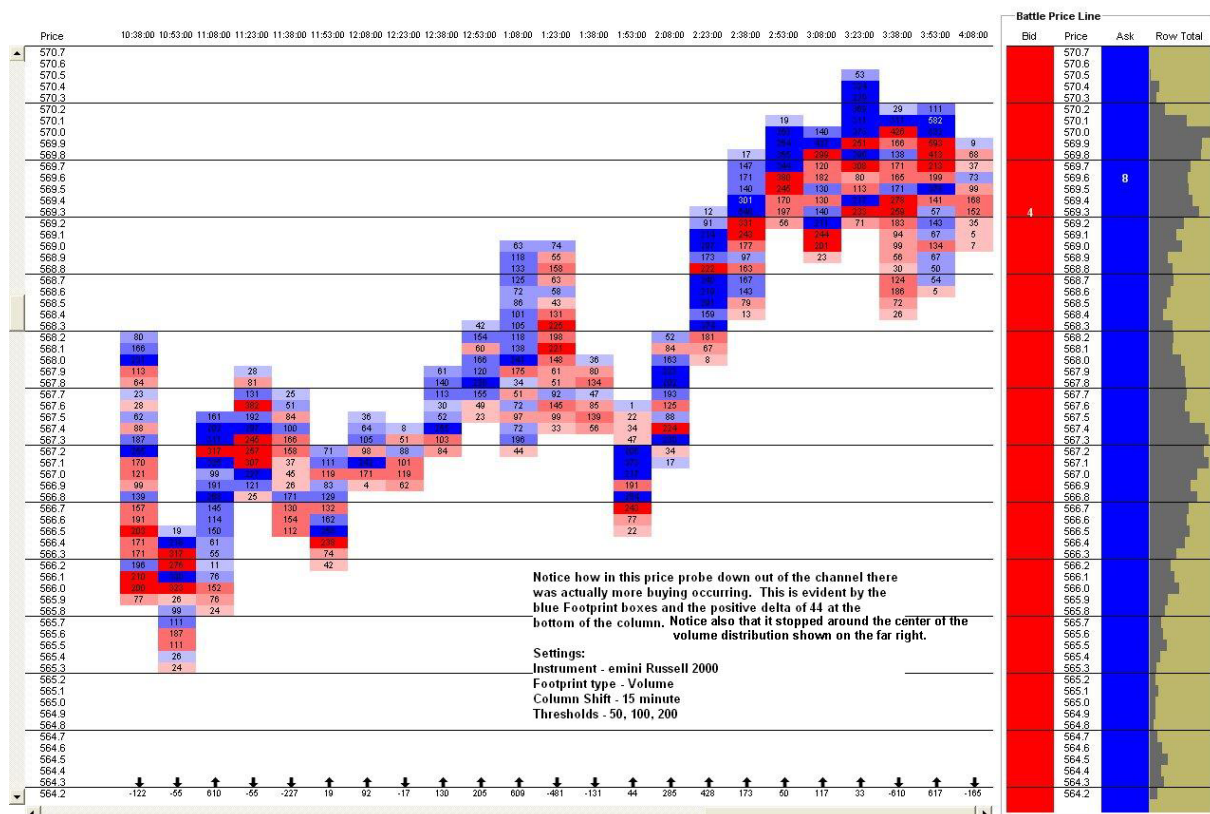


Figure 4-1

## 4.3 Trending

### 4.3.1 Trending

The definition of a trend is the general direction of the market. However, being general probably won't make you any money. It takes a more precise definition such as higher highs and higher lows for an up trend and lower highs and lower lows for a down trend. A combination of the two would represent a sideways market. In the definitions just given there is no mention of volume. However, volume is a key piece of information when determining STRENGTH of the trend. Current charting methods only allow for measuring of volume with respect to time and in some cases, total volume for each price. However, none take it a step further.

The Footprint<sup>TM</sup> assists in trend following in a breakthrough way. Each Footprint<sup>TM</sup> measures the buy/sell pressure through a thermometer of color. The thermometer color is set by the trader to levels of volume they feel are important for their specific market. Notice in the Footprint<sup>TM</sup> charts below how the color of each Footprint<sup>TM</sup> accurately reflects the general price direction of the trend. Many times the price direction will be confirmed by the color of the Footprints<sup>TM</sup> following that trend. For example, in an uptrend typically you will see many more blue Footprints<sup>TM</sup>. The darker the blue the

more conviction on the buyers part to drive price higher. In a down trend typically you will see many more red Footprints™. Look for blocks of dark reds or dark blues to confirm the direction of the trend. We call blocks of solid colors *volume clusters*. These represent areas where aggressive buying or selling entered the market and could be an area of support/resistance on a pull back.

Many traders have found the Footprint™ useful in following the trend and has given them something to "lean" on and not get shaken out at the slightest sign of price contention. Seeing the flow of volume and painting it to the screen in the manner the Footprint™ does has been a breakthrough for traders. Volume is a very important component of trade and in a trend it's very crucial to know when volume begins to weaken. The Footprint™ constantly monitors the flow of volume as price trends and will alert traders to the condition of the trend by a change in color. Traders will be better equipped to make more timely and informed decisions because they will know more about the price trend. Nothing is more visual and reflects true market sentiment better than the Footprint™.

As price trends into an area of support or resistance, the Footprint™ showcases how volume is behaving. For example, if price has been trending up and pulls back to your up trend line, use the Footprint to monitor the supply/demand at that point. This helps to determine the overall strength of the trend by gauging the volume of the retracements to known areas of support/resistance. Oftentimes when approaching an area of support/resistance volume will begin to dry up, signaling a reversal or pause in the market. A more informed trader is a better trader and the Footprint™ is helping to bridge this knowledge gap.

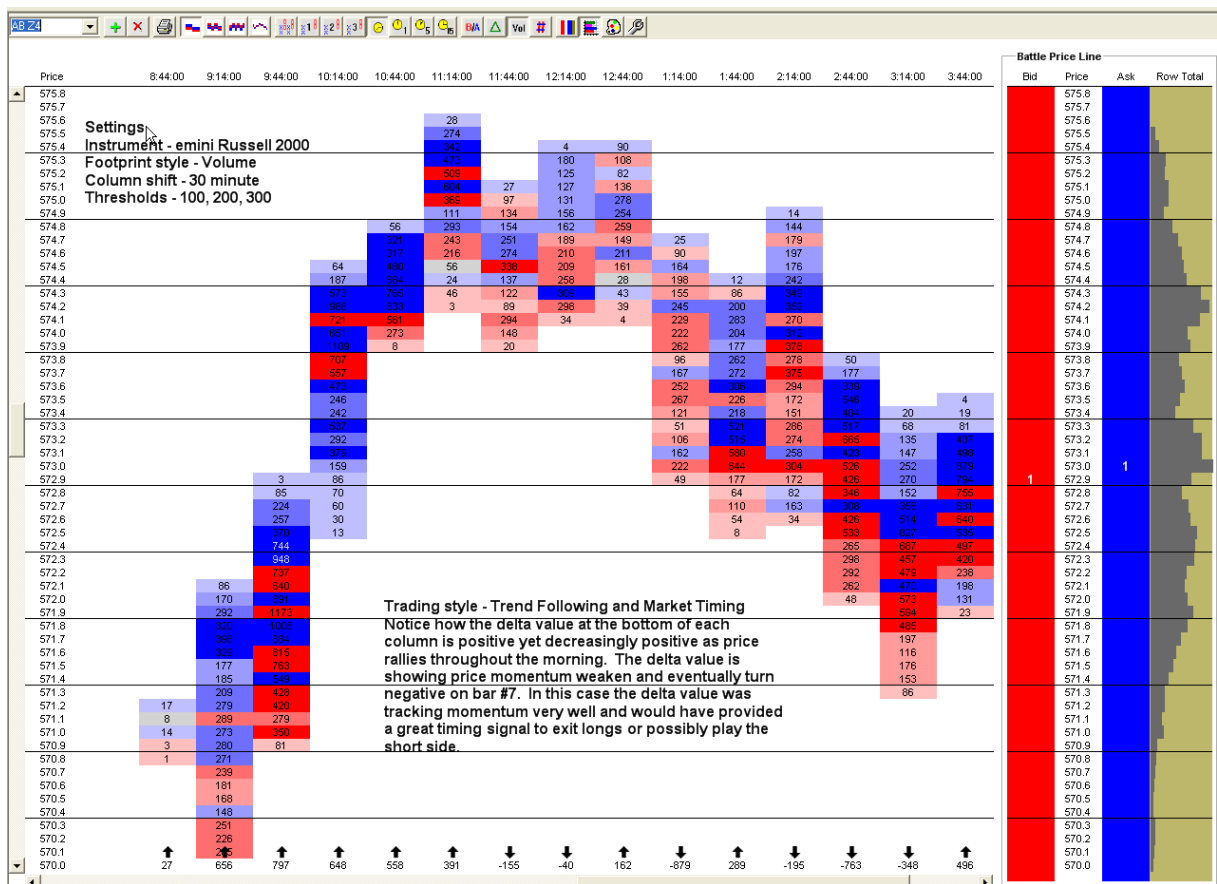


Figure 4-2

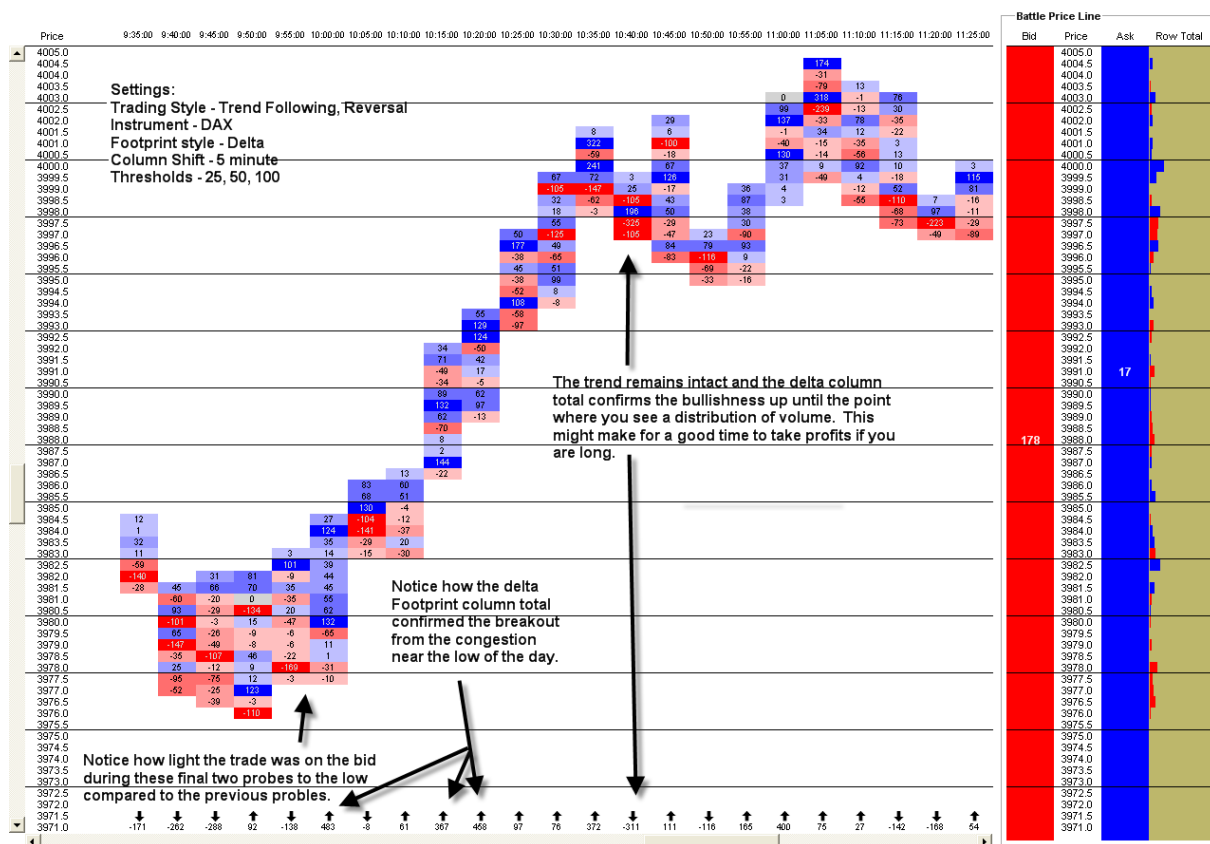


Figure 4-3

### 4.3.2 Continuation

Continuation patterns are pauses in the prevailing trend that create sideways price action. As a general rule of thumb, the move out of the continuation pattern will be in the direction of the prevailing trend. Continuation patterns are generally NOT reversal patterns. Continuation patterns consist of triangles (ascending and descending), flags, pennants, rectangles and wedges. These are the most common continuation patterns and can be seen and followed much more closely using the Footprint™ chart.

Understanding the probability of a continuation occurring is crucial for deciding whether or not to take the trade. Once you decide to take the trade you must time your entry. To better your chances of success, first determine whether or not you are witnessing a continuation pattern. Seems obvious, yet many lose sight of this fact. Once aware of the chart pattern and its general tendencies, use the Footprint™ to help confirm the pressure of the market and then better time your entry based on the flow of volume into the market. Using traditional technical analysis with the Footprint™ chart enables traders to better determine and execute trading opportunities.

In the figure below a wedge continuation pattern is used as an example of how the

**Footprint™** provides more information to better determine price direction. First, identify the direction of the price trend. In this case the trend was up. A wedge forms which represents a continuation pattern. Judging by the positive column delta's for each bar within the wedge it becomes more clear that the probability of a continuation is relatively high. Once price breaks out to the upside, keep an eye on the color each **Footprint™** as price continues to rally. In this example there are many more blue than red **Footprints™**. This gives a trader confidence that the trend will continue. If you need help in understanding what makes **Footprints™** blue or red, read the Delta **Footprint™** section of this guide.

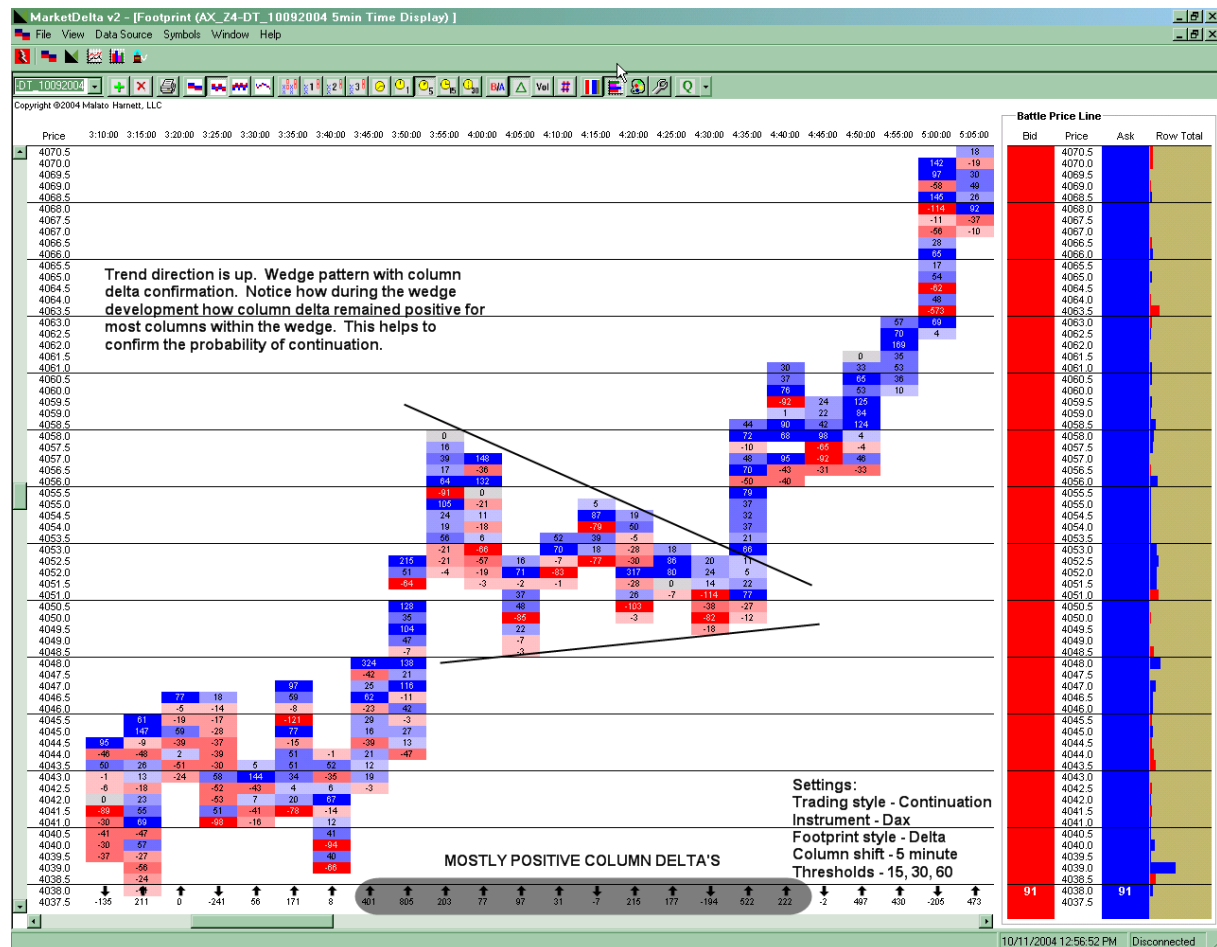


Figure 4-4

### 4.3.3 Volume Confirmation

For trend followers it is very important to know if volume is fading as price matures in the trend. Declining volume in a trend might alert the trend follower that the trend is weakening or about to end. Knowing how much volume is occurring and how it is flowing from the bid to the ask is very crucial in the success of gauging whether the

trend will continue or begin to run out of gas. Running out of gas is running out of volume. You don't want to be the buyer of the high when the trend runs out of gas. The Footprint™ will give you this constant fuel gauge and help you to better understand what is actually happening in the market.

Because we give volume at price inside the Volume Footprint™, use this information to read if more volume occurred at the top, bottom, or mid-range of that bar. It's very critical to know if most of the volume on a particular bar was done near the high or low of the bar. In a rising market, if a majority of the volume is done near the high of the Footprint™ bar this could signal follow through as price continues to rally. Vice versa for a falling market.

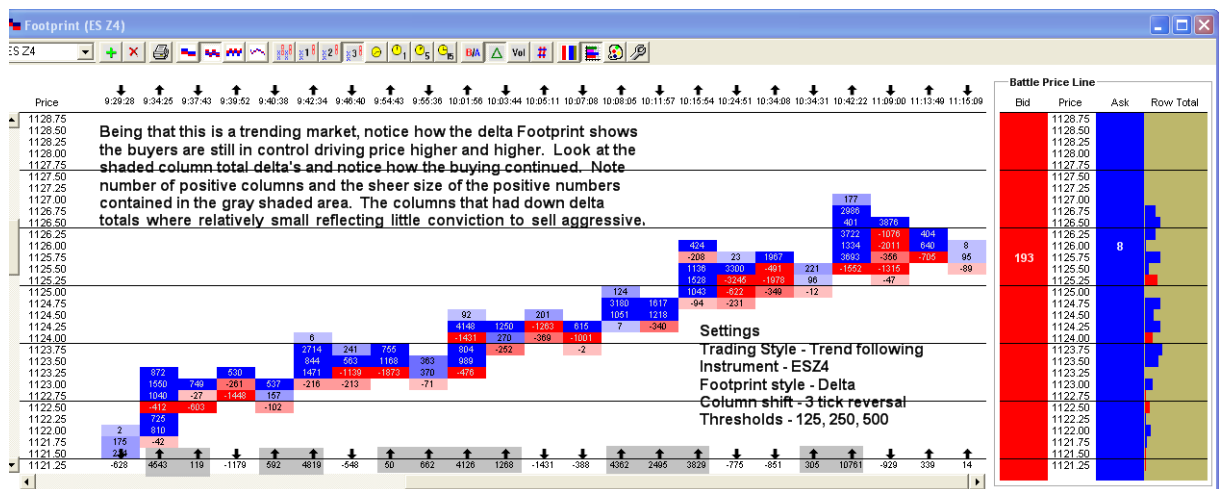


Figure 4-5

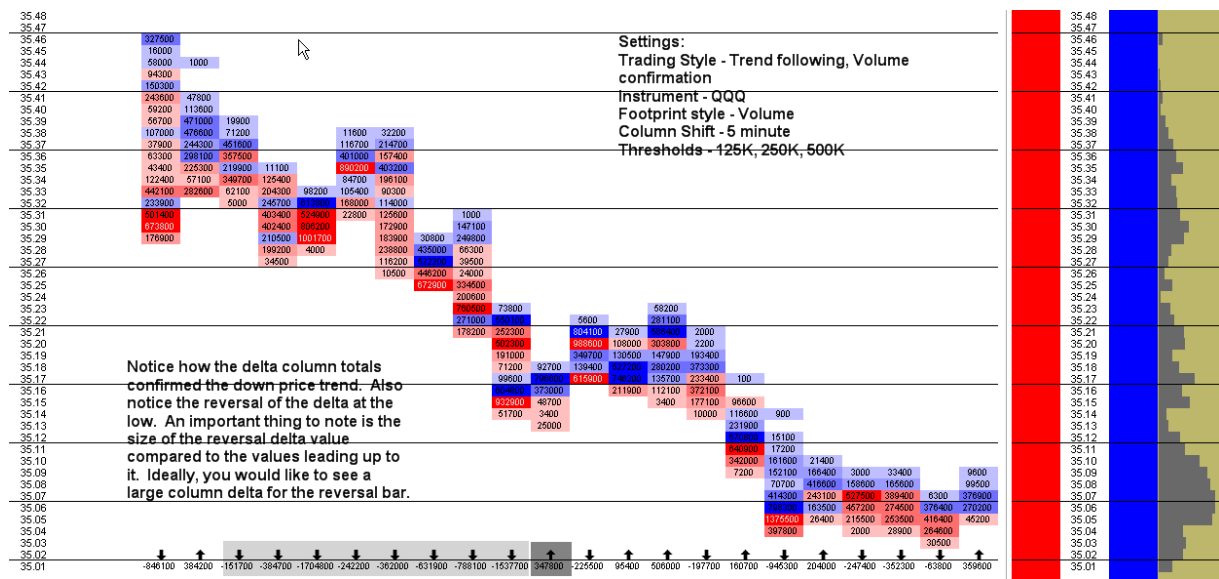


Figure 4-6

## 4.4 Reversals

### 4.4.1 Reversals

Reversals are probably one of the most commonly recognized chart patterns. They come in many forms, all of which can be read in any good book on technical analysis. A few would be double or triple tops/bottoms, outside bar, spikes, and head and shoulders. While this guide is not intended to cover all the different reversal chart patterns, it is intended to show how the Footprint™ displays some of these formations and why it adds value to identifying these patterns. Volume helps to confirm whether the trend is truly reversing or whether continuation is likely.

One of the key components of a reversal is volume. There are many trading rules which spell this out.

- Significant highs & lows are very often made on higher than average volume.
- A re-test of a top/bottom on light volume is telling of lack luster conviction.
- A re-test of a support/resistance on increased volume provides traders with the information that price may be violated during this probe.
- Volume helps to determine whether the price pattern can be trusted.
- Volume gives confirmation to trend direction. Use the Footprint™ to gain the inside view of when and how the market is reversing.
- Volume should increase in the direction of the trend and decrease when going against the trend.

Using the Footprint™ to monitor supply and demand is a breakthrough for traders that has yet to be realized. Following volume at these important areas and having the ability to better judge what is really taking place is crucial for success of the electronic trader.

A quick history lesson: One of the primary reasons many pit traders were able to be successful was due to the fact they could see and hear the volume coming into and around the pit. This was a great advantage to them because they could accurately gauge supply and demand at important levels throughout the trading day. Put many of them behind the electronic trading screen and they feel lost and oftentimes are not able to succeed like they once did. Why could this be? I would venture to say it's because traditional charting methods don't provide them with the flow and feel of volume that they once had at their fingertips. The Footprint™ chart was developed by traders for traders and fulfills this need in the best way possible. Take time to grasp how the information is presented and internalize it.

Figure 4-7 is an example of a double top pattern. It is shown using the small Footprint™ to add the perspective of time and how the market developed into the pattern it did. Read the notes on each chart to understand how this pattern could be interpreted using the Footprint™. The small Footprint™ resolution looks very similar to other charts you have used in the past because it shows more history of price movement. One of the



primary differences however, is the ability to follow supply and demand using color. In Figure 4-7 the blue Footprints™ represent more buying at that particular price and the red Footprints™ represent more selling at that particular price. The shade of blue or shade of red is determined by the level of aggressiveness on the part of the buyer or seller. It is clear the buyers put forth their best effort to carry price higher on the second probe to new highs, but couldn't muster the follow through to make it happen. Price then violates the trough between the double top highs on increasing volume, thus confirming the topping pattern.

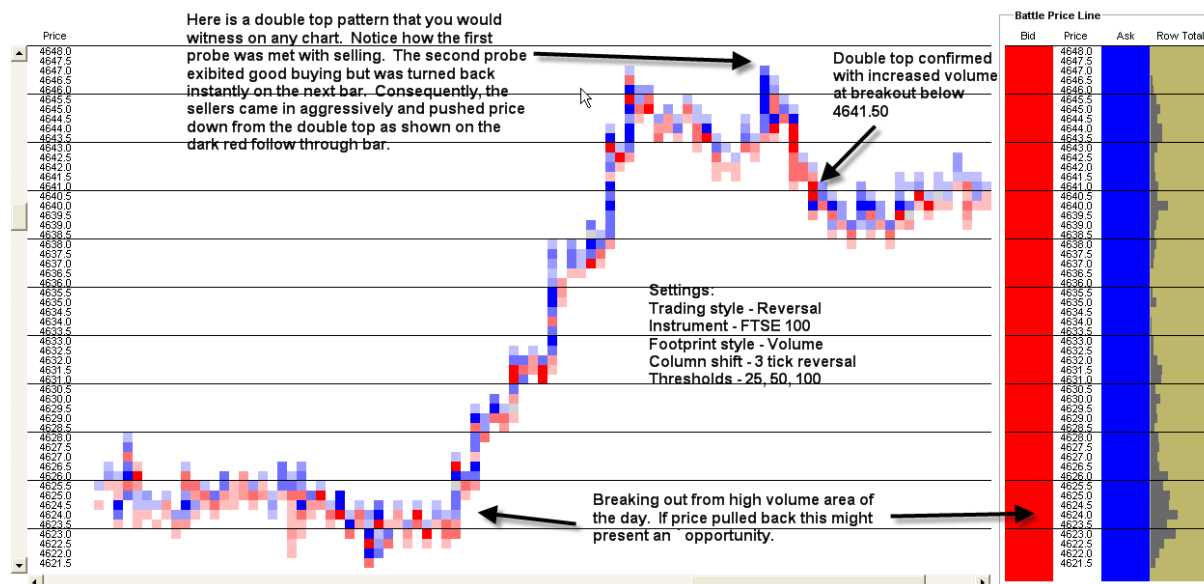


Figure 4-7

Figure 4-7 is a very specific example of how the Footprint can enhance how you see what is taking place in a particular market. Price moved on strong volume. This showed conviction by the buyers as they overcame supply with demand.



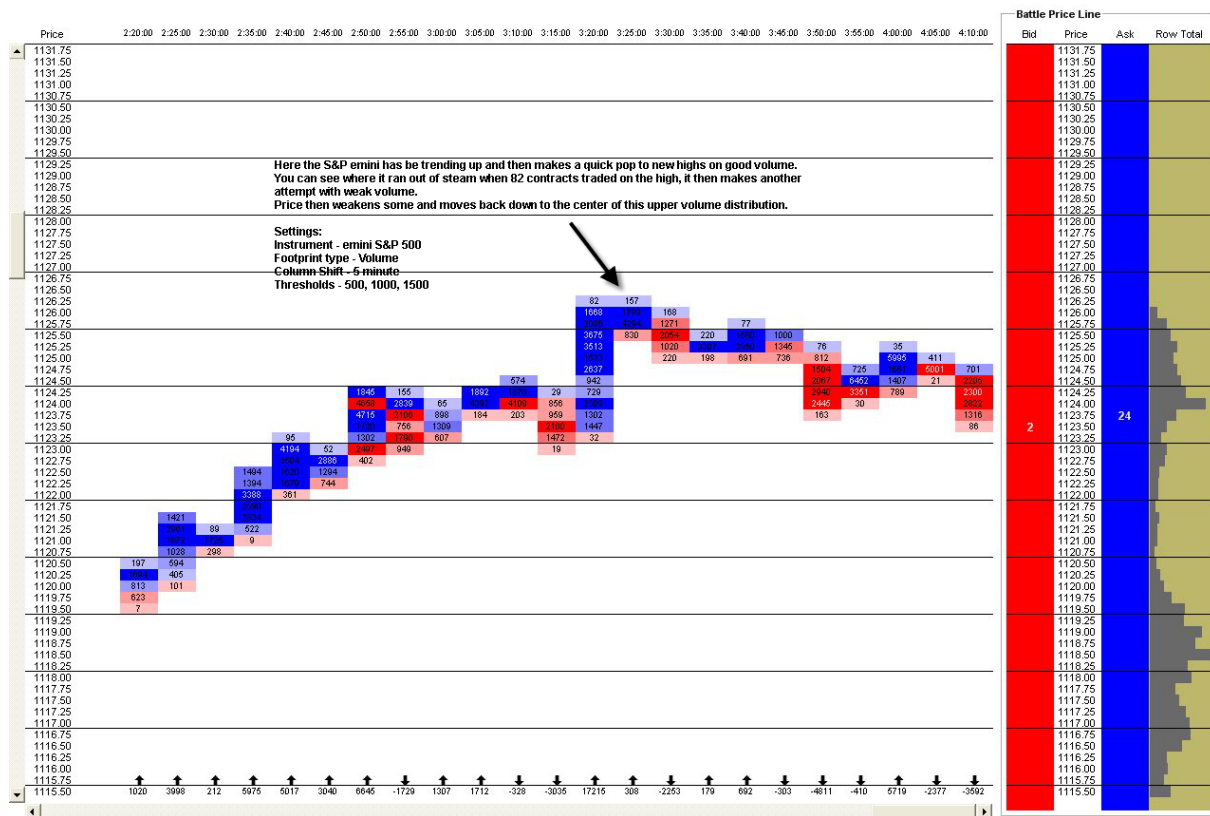


Figure 4-8

Reading the comments on Figure 4-8 you can see that the high price couldn't attract much volume, even on the second probe. This is very telling information, especially as price moves even one tick away. It tells you that present demand may be wavering. It is NOT telling you that price is going to sell off, but rather taking a breather. Price had just put in new highs and was due to retrace some. Over the next 30 minutes price backed off slowly to the upper high volume area of 1124.00. This example points out the volume at extremes during price probes. Having the knowledge of weak volume at extreme prices helps to confirm a potential reversal or consolidation at that level.

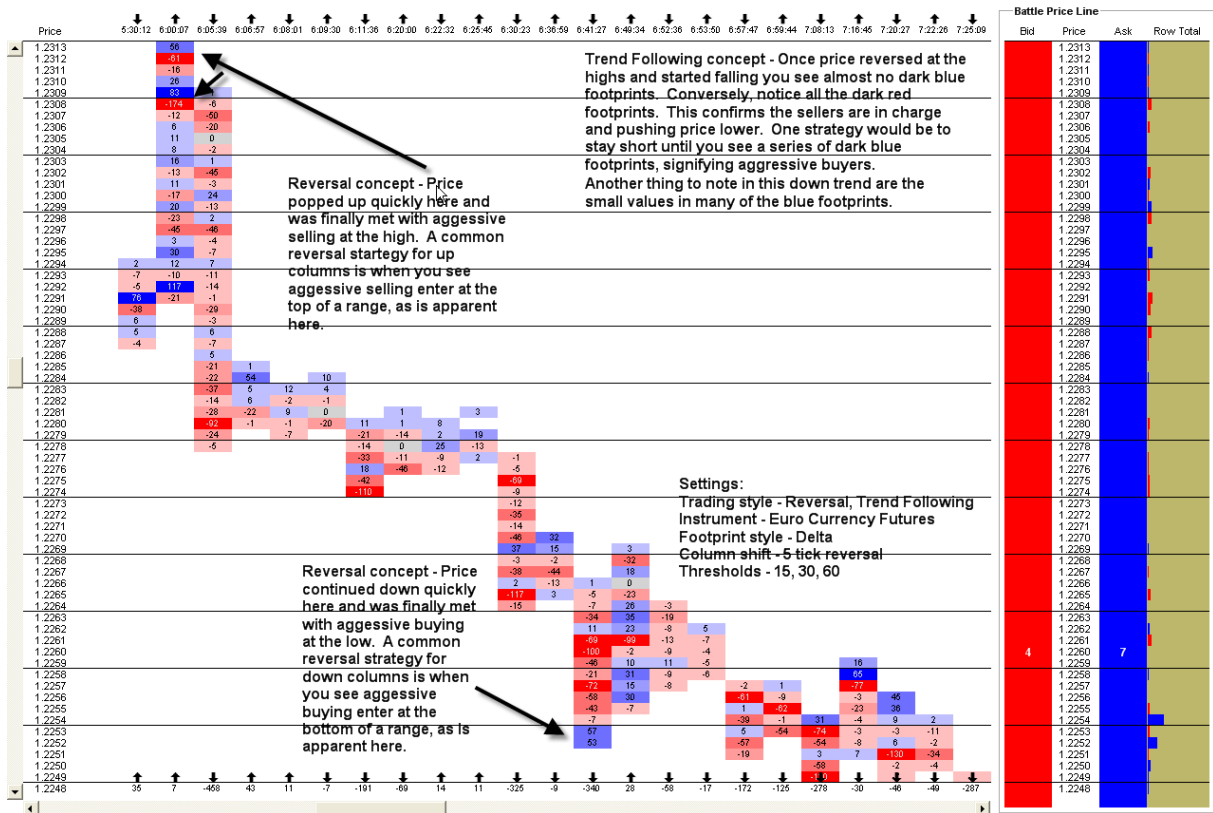


Figure 4-9

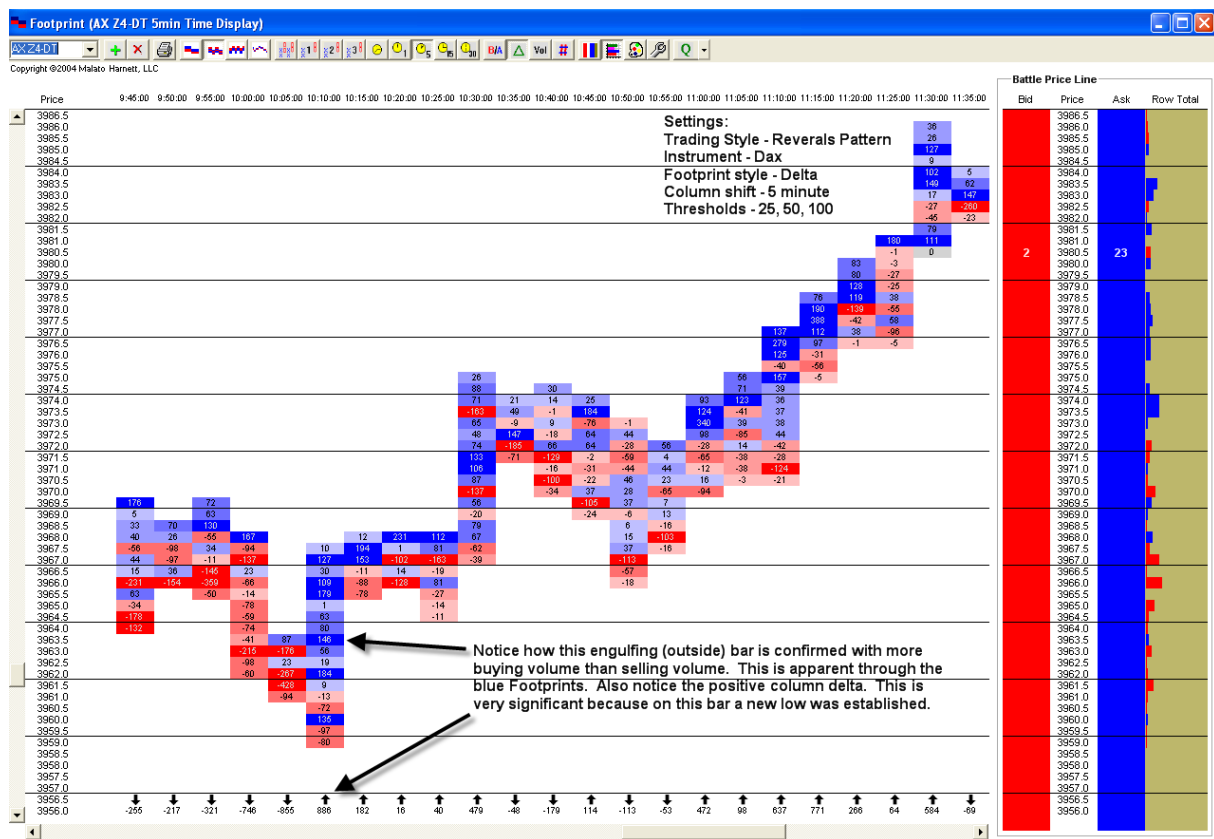


Figure 4-10

Figure 4-10 exhibits how volume confirms a reversal and how the Footprint™ helps to make the confirmation very clear, both visually and quantitatively. Reading the notes on the chart, it is clear that there was a high probability of a reversal. After the reversal bar was established, notice how little price retraced the reversal bar. After the initial price bounce, price remained strong and the aggressive buyers maintained control. There are dark red Footprints™ apparent after the reversal, but notice there were none back to back forming selling clusters. There are multiple back to back blue buying clusters. This is another sign that buyers are beginning to enter the market and establish a trend. All this helps to confirm the reversal bar that was established at the lows.

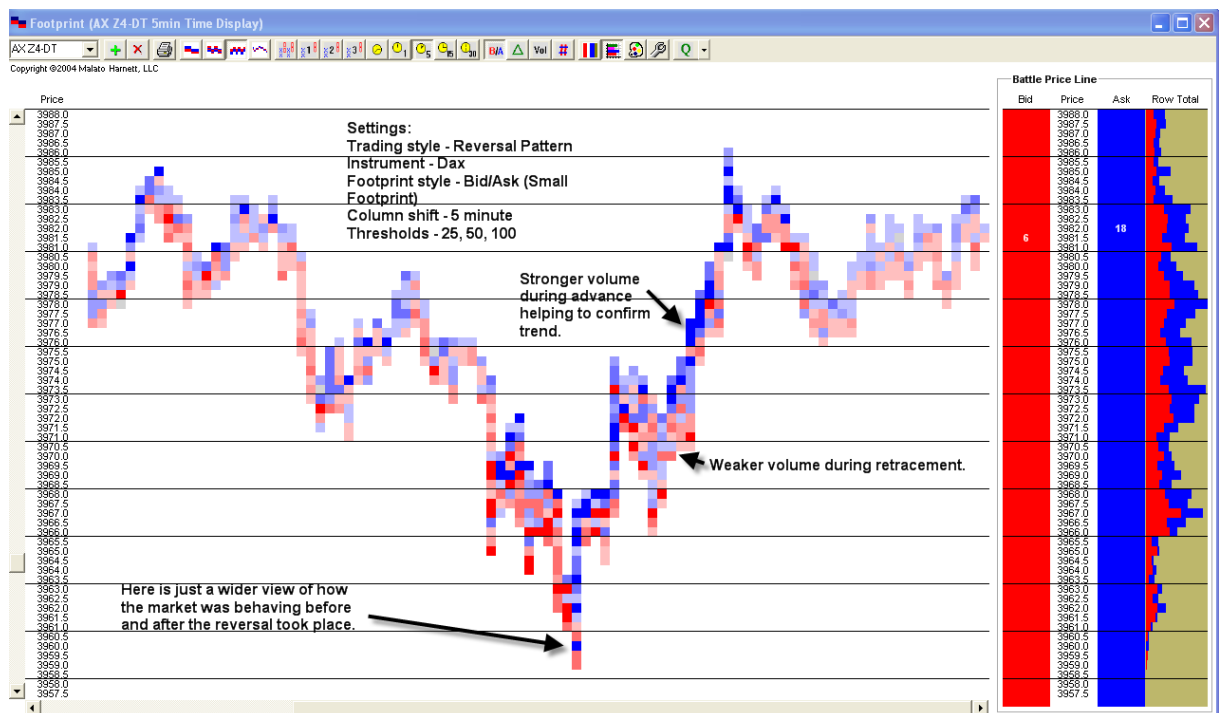


Figure 4-11

Figure 4-10 is the same market and time as Figure 4-11 but using a different Footprint™ resolution. This gives a little more perspective of what the market was actually doing prior and after the reversal. The Footprint™ helps to make it very clear when the volume is increasing or decreasing and who is in control of that increase or decrease. Look at Figure 4-11 and notice how obvious the Footprint™ makes this insight. Darker colors represent more conviction on the part of either buyers (blue) or sellers (red).

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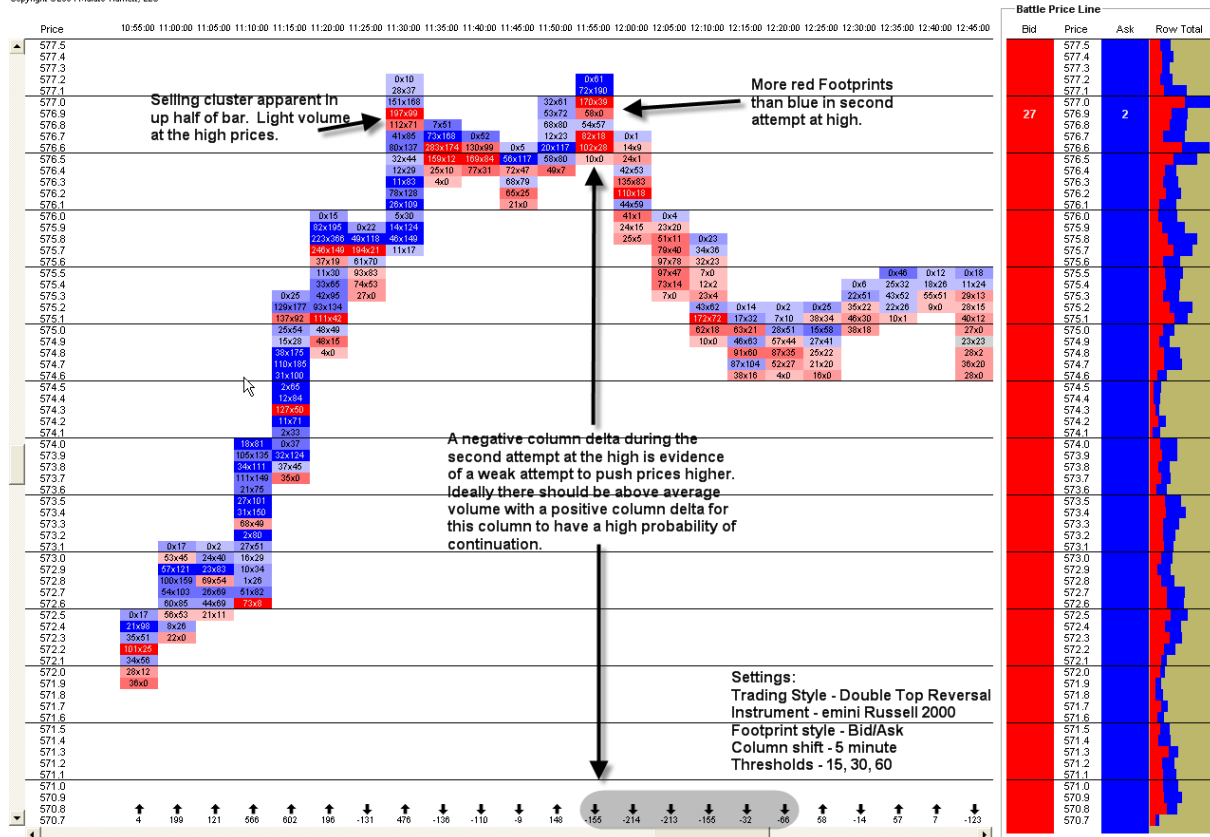


Figure 4-12

## 4.5 Breakouts

### 4.5.1 Breakouts

Breakouts occur when price is exiting an area of consolidation. This means many breakouts occur when price is leaving a continuation pattern. A continuation is nothing more than a pause in the current trend. Some of the most common continuation patterns are triangles (ascending, descending, symmetrical), flags, pennants, wedges, and rectangles. It is crucial that a trader understand what these patterns look like and how each should be treated. The reason it is important is because the Footprint™ does a superior job at showing how volume is developing within each of these chart formations. To better understand price potential, it is critical for a trader to anticipate what to expect given the most likely probability. Seeing the information displayed in the Footprint™ is very helpful, but unless you have an expectation of what is the most likely outcome given the information you are viewing, all is worthless.

Two other types of breakouts would be support and resistance areas and trend line breakouts. Breakouts should occur on higher than average volume. Anything less is very susceptible to being a false breakout. Using the Footprint™ and it's intuitive color

display, its very clear when breakouts are occurring on low or high volume and at which individual prices. The Footprint™ also helps to show how much volume and which side of the market it is occurring prior to the breakout. This helps to better determine the probability of the eventual breakout.

For breakouts, the Footprint™ is best used either in the volume or delta view. The volume Footprint™ will allow you to gauge whether volume is drying up or building as price trades at critical levels. Delta Footprint™ helps to better gauge who is in greater control at various price levels. Read the text in Figures 4-13 below to understand the setup and eventual breakout that occurred.

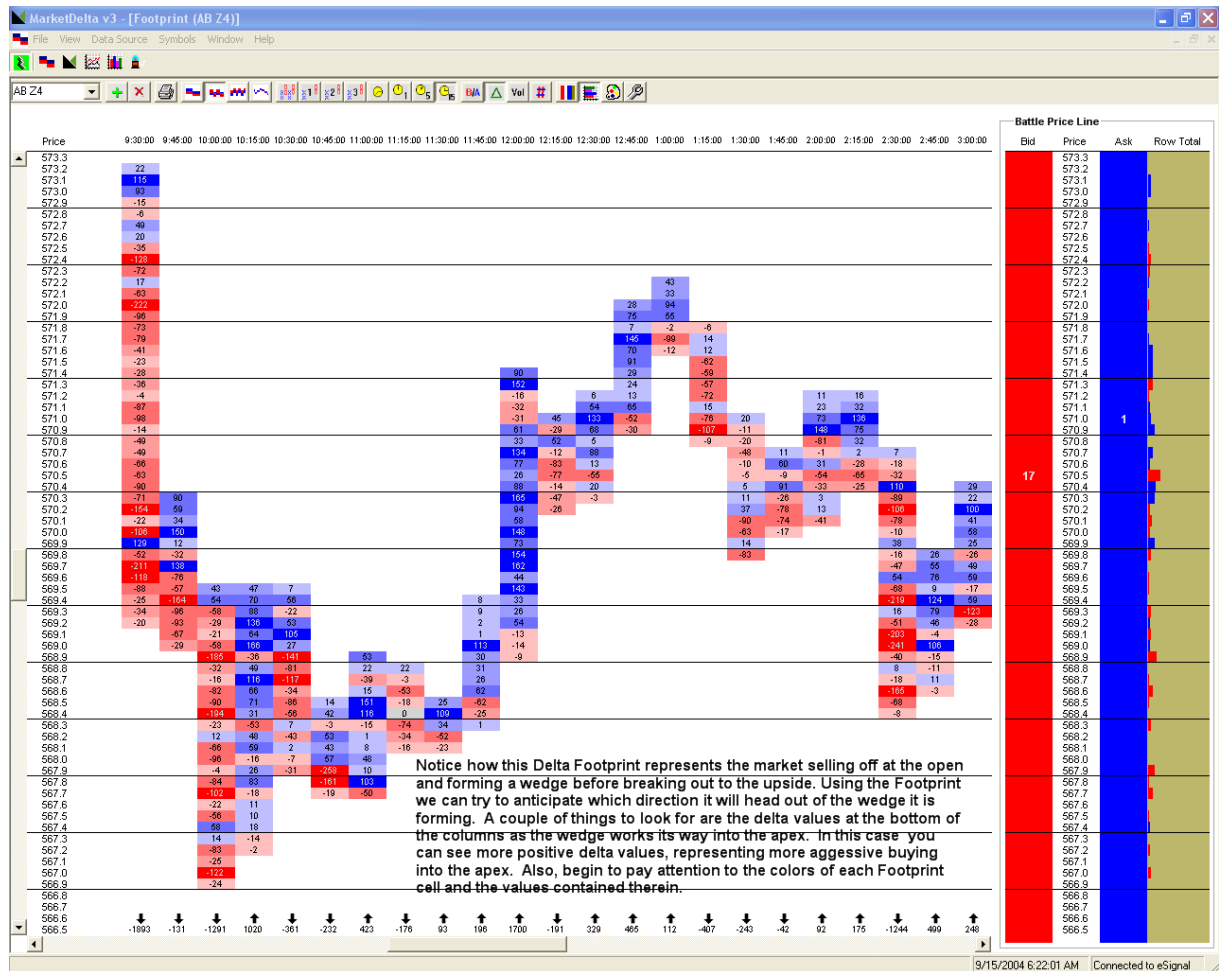


Figure 4-13

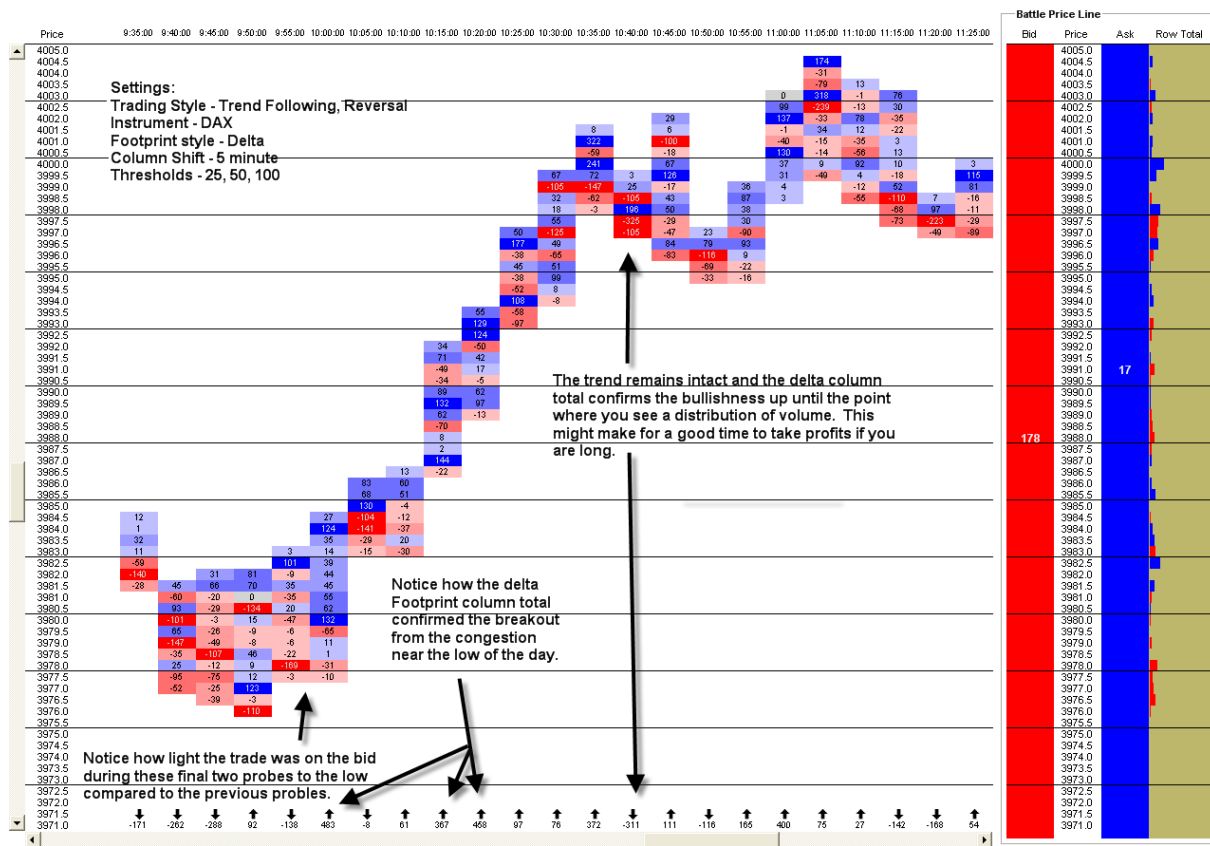


Figure 4-14

## 4.6 Rotational

### 4.6.1 Rotational

A rotational market is one which finds price rotating within a range or channel. The rotational concept can be seen in any time frame, but these examples will consist of intraday time frame examples using one days worth of data. Often a market will rotate between support and resistance areas in what seems to be a very random pattern, but having the perspective of the Footprint™ can sure help. Due to the unique manner in which the Footprint™ displays information, patterns will become more apparent and help you spot trending and rotational markets more clearly.

It is crucial that traders understand what are reasonable expectations for the trades they make. Understanding if the market has the potential to trend versus rotate is very important if you want to become a successful trader. The Footprint™ does an exceptional job taking the task of identifying what type of day is developing and visually makes more clear how expectations unfold while the market makes its rotations.

Each Footprint™ is a price represented by a box. The boxes stack on top of one another

making it very clear what the defined boundaries are for the rotation. An example of a rotating market that is trending lower is Figure 4-15. The important concept to grasp here is **HOW** it rotated lower. Each 5 minute bar had almost the exact same range and they continued to probe a point or two lower without breaking down dramatically. All in all, a very boring drift lower, yet predictable.

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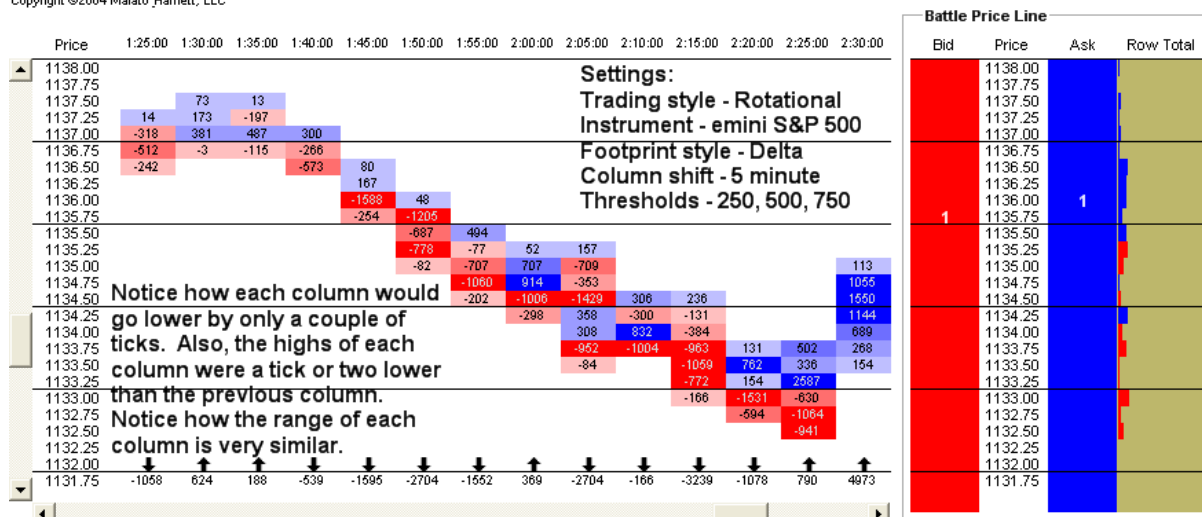


Figure 4-15

Yet another example of how the Footprint™ helps the trader keep price rotations in perspective is by providing a clear picture of the average range of each rotation. Notice in Figure 4-16 how each 5 minute bar generally consists of 6 or 7 prices. Figure 4-17 shows the same information except in a trending market and with the Footprint™ Count analytic applied. The Footprint™ presents this information so clearly that you almost take it for granted, however, this is very important to recognize because it makes you more aware of market potential. Being aware of market potential contributes to a more intuitive recognition of patterns.



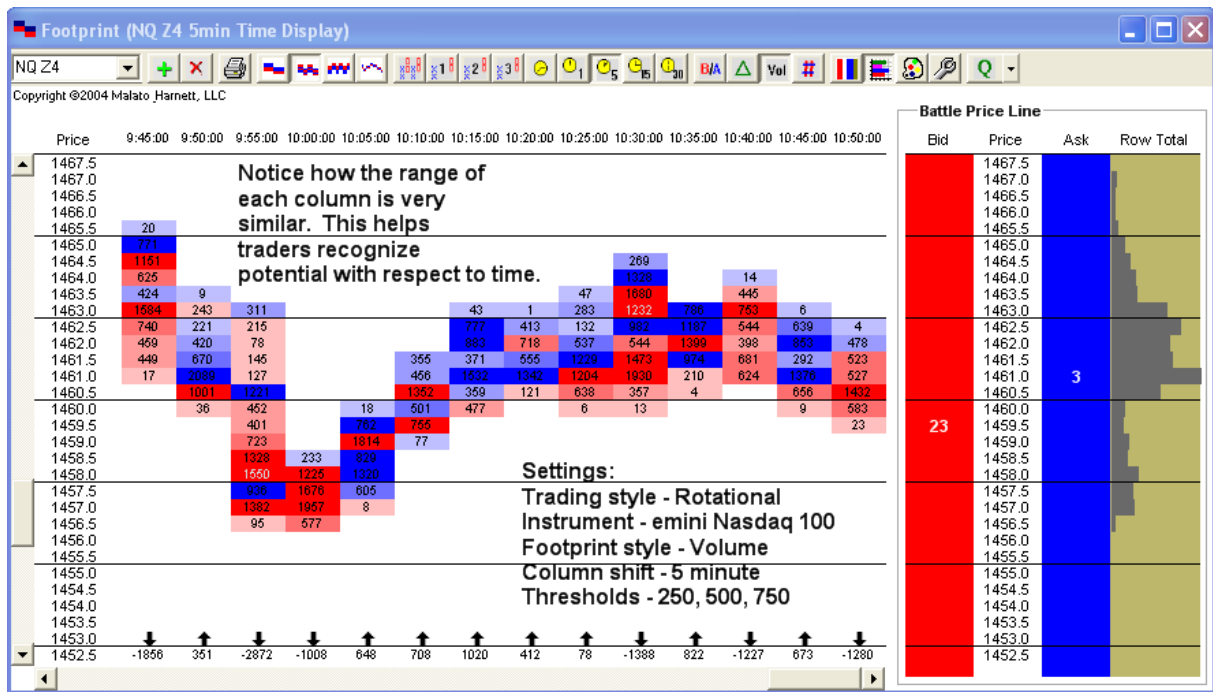


Figure 4-16

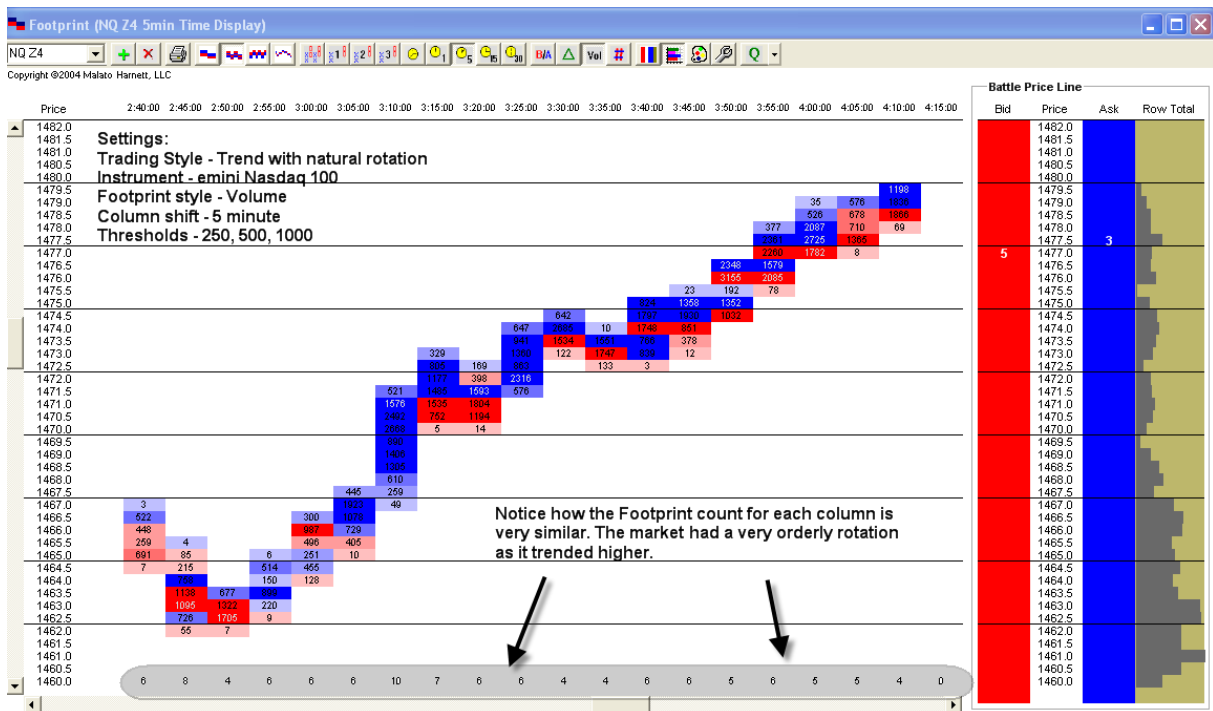


Figure 4-17

In Figure 4-18 it is obvious that conviction is lacking as the market wanders back and forth. Markets with conviction and direction would not be flipping back and forth from a red Footprint™ to a blue Footprint™ (see [Candy Striping](#)). The only place it shows conviction is when it bounced off the low and buyers entered driving price back to the

top of the range.

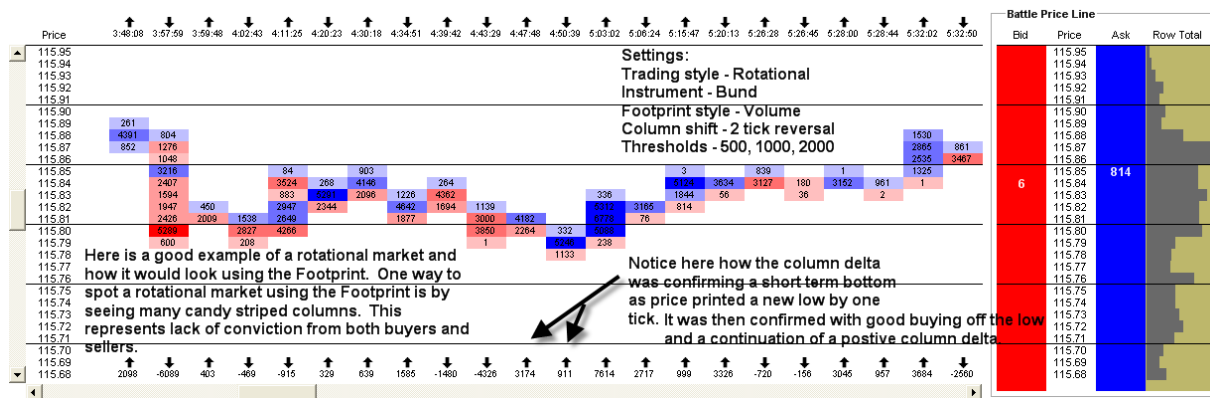


Figure 4-18

Figure 4-19 is another good example of a rotational market. It can't be stressed enough how important it is for a trader to build expectation around the potential for a given market. Expectations will guide actions. Actions will lead to profits or losses. Proper actions will lead to profits and late actions will lead to losses. Seeing the market develop as it did in Figure 4-19 will give one confidence that the chance for a breakout in either direction is reduced because of what the Footprint™ is showing. On the contrary, if trade begins to accumulate near one of the extremes and volume is evident through dark Footprints™, then the underlying conditions may be changing and with it your expectation of market potential will be rising. Your attention will now be focused on a breakout which may ensue. No other type of chart will provide this type information in such a clear manner.

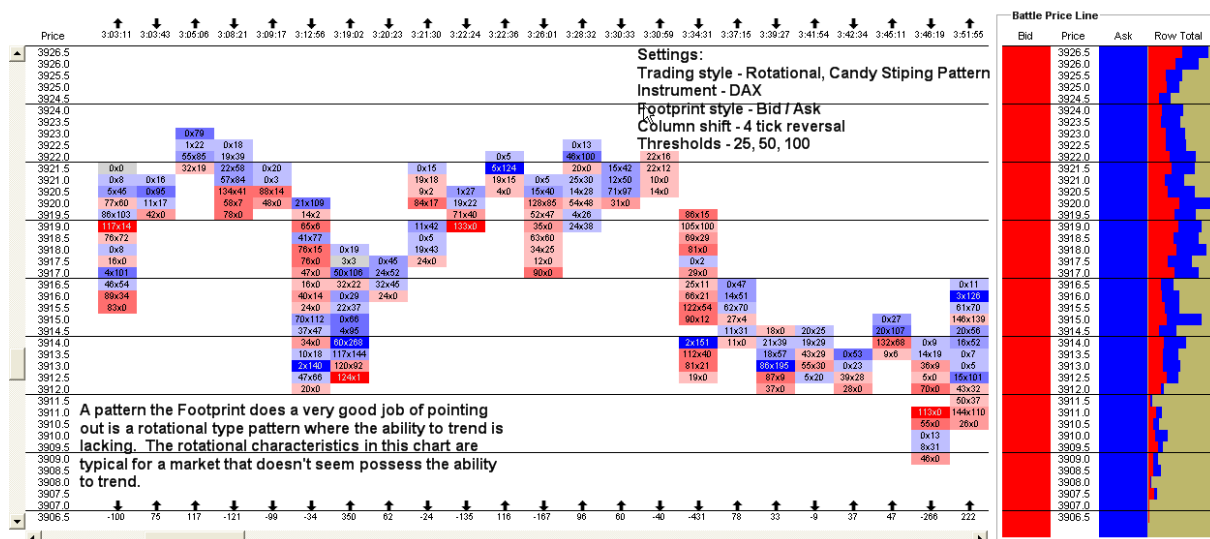


Figure 4-19



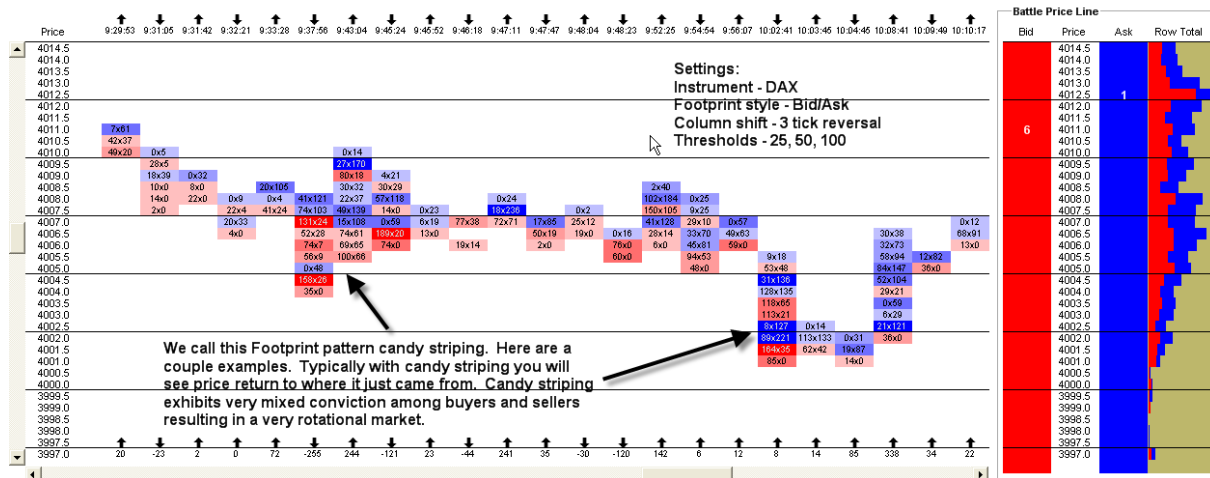


Figure 4-21

Look at the randomness in Figure 4-22. All the candy striped Footprints™ exemplify this very well, helping to keep the trader focused on what type of market to expect. One of the key benefits the Footprint™ provides is the chance that the bar might retrace. What this means is when candy striping is present in a bar there is a high probability that a significant retracement will take place for that bar. Bars that are all or mostly red or blue exhibit more strength and provide a lower probability of a significant retracement. Notice in Figure 4-22 almost every bar had a significant, if not full retracement of the preceding bar.

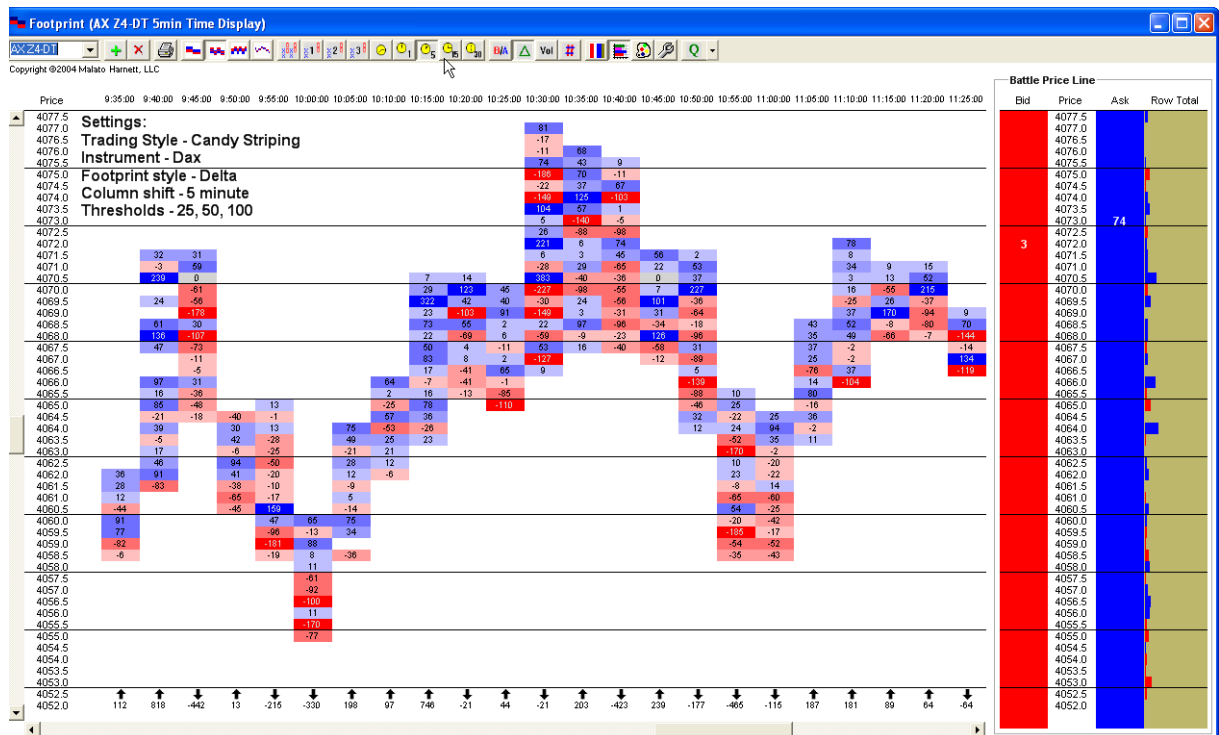


Figure 4-22

## 4.7 Consolidation

### 4.7.1 Equal Delta

By comparing column delta's we can factor in a periods of neutrality. Strength of one bar being cancelled out by weakness of the next bar.

Equal delta can also be found in a rotational pattern where price moves up with a certain amount of shares being accumulated and then moves down with roughly that same amount of contracts being distributed. This provides a nice volume metric to gauge pullbacks after a move in one direction. An example of this would be if price rallied 5 points with +10,000 contracts being accumulated. If price were to pullback the entire 5 points but with only -5,000 contracts being distributed, you would be aware that only half of the volume that was accumulated was distributed on the way back down. If this isn't clear, study the Delta Footprint section of this guide to understand what delta means.

Figure 4-23 shows a rotating market early in the session (note the flip flopping column delta values). You can see, as highlighted in pink, the column delta's began to show weakness on the last probe to the highs. It became more clear that the buyers lacked conviction to drive price higher. Notice that once price started to go lower the column delta values began to increase negatively and were in back to back bars.

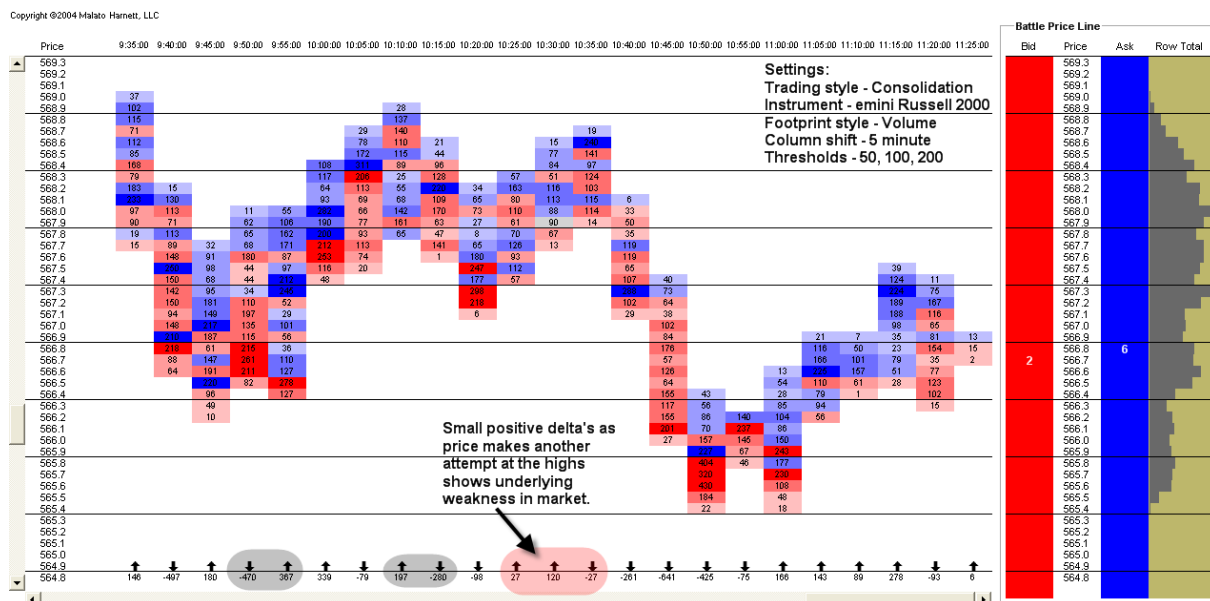


Figure 4-23

### 4.7.2 Pressure Building

One of the benefits the Footprint™ provides over other types of charts is its ability to gauge market pressure using only volume and price. The Footprint™ is not an indicator, rather just a true reflection of what is taking place in the market at any given time. Like other forms of charting, the Footprint™ has unique patterns that develop and should be understood. Daily use of the Footprint™ brings closer an understanding of not only the patterns, but early detection of one in development.

The gauging of pressure is in reference to buyers becoming more aggressive than sellers at any given price at any given time. This equally holds true for sellers who become more aggressive than buyers at any given price at any give time. In Figure 4-24 it is apparent the Euro currency is forming a wedge and is compressing as it moves towards the apex. The "pressure" is apparent through the dark blue Footprints™ near the apex. Other chart forms will show this apex similarly in terms of shape, but they won't show which side more pressure is building. Knowing more volume is occurring at the ask as the apex narrows if very important information and can help to anticipate the eventual breakout.

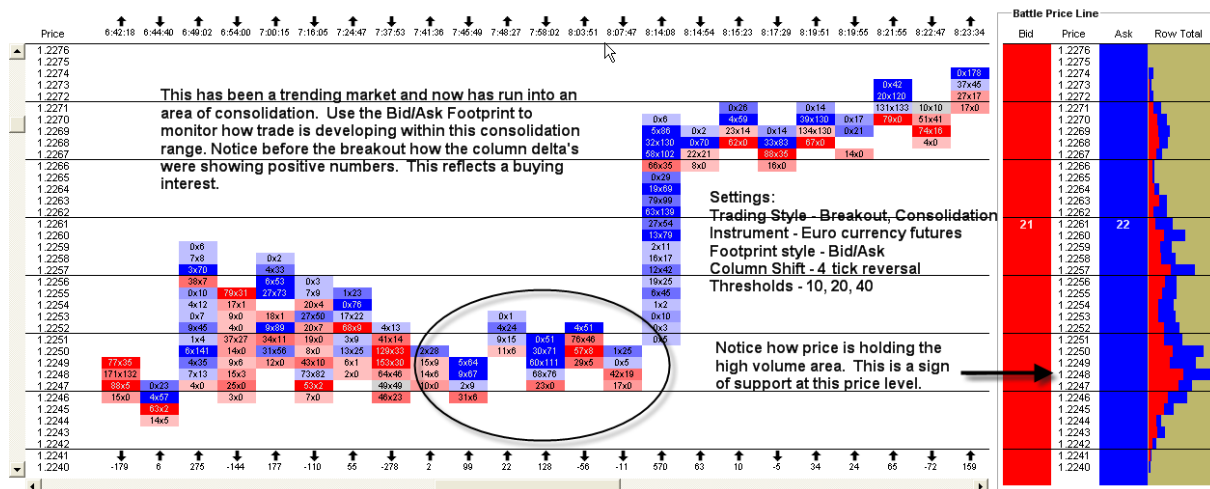


Figure 4-24

Another example of pressure building would be when price is range bound. As price bounces from the top of the range to the bottom of the range it will become apparent which side of the range more volume accumulates. This is apparent through the value contained within each Footprint™ and the color of each. Darker colors appearing on one of the edges could be aggressive participants betting on a breakout in that direction. A key tactic often used is watching the fringes of a trading range or channel for clues as to what the market might do next. In Figure 4-24 prices breaks out of consolidation around the 1.2250 level and rallied all the way to 1.2270 with only one red Footprint™ contained in the whole rally.

## 4.8 Scalping

### 4.8.1 Scalping

Scalping is more of a trading technique than a strategy, however, we have included it in this section because many users of MarketDelta™ and Footprint™ are scalpers. Scalpers must learn all of the patterns discussed throughout this manual and then apply them on a shorter time frame. Candy striping, column delta divergence, rotational, and the skipping pattern are among some of the patterns that will not be recognized prior to reading the rest of this guide.

The ability to see how much traded at each price and what side of the market the trade occurred on gives the trader added insight to how market is trading. Intuitively understanding market potential and how the market is trading is crucial for scalpers and longer term traders alike.

Scalper will find more value in the absolute numbers displayed in the Footprints™ than longer term traders. This is especially true at the extremes and at critical breakout points. It can possibly help the scalper better determine which way the market is leaning and allow them to enter/exit the market in a more timely manner. This is accomplished by having the ability to see which side of the market more of the trade is going to. Having a basic understanding of supply and demand and price / volume relationships is a must for scalpers. To see price rally with equal trade occurring at the bid and offer represents a possible false rally. To see price rally with more trade occurring at the ask than bid typically represents a stronger rally. This principle applies to any time frame or market and is not something new.

Scalpers can witness this in real time using the Footprint™ and better their understanding of market dynamics. The figure below represents selling pressure and consistent downward price rotations very well. Notice the consistent pressure on the bid which is evident by all the red Footprints™. Viewing the market through the Footprint™ will help scalpers see which side of the market has more strength and allow them to position themselves accordingly. It also assists the scalper in seeing the price rotations and boundaries in a very clear way. Patterns begin to become more evident simply because price is presented in a much more intuitive manner.



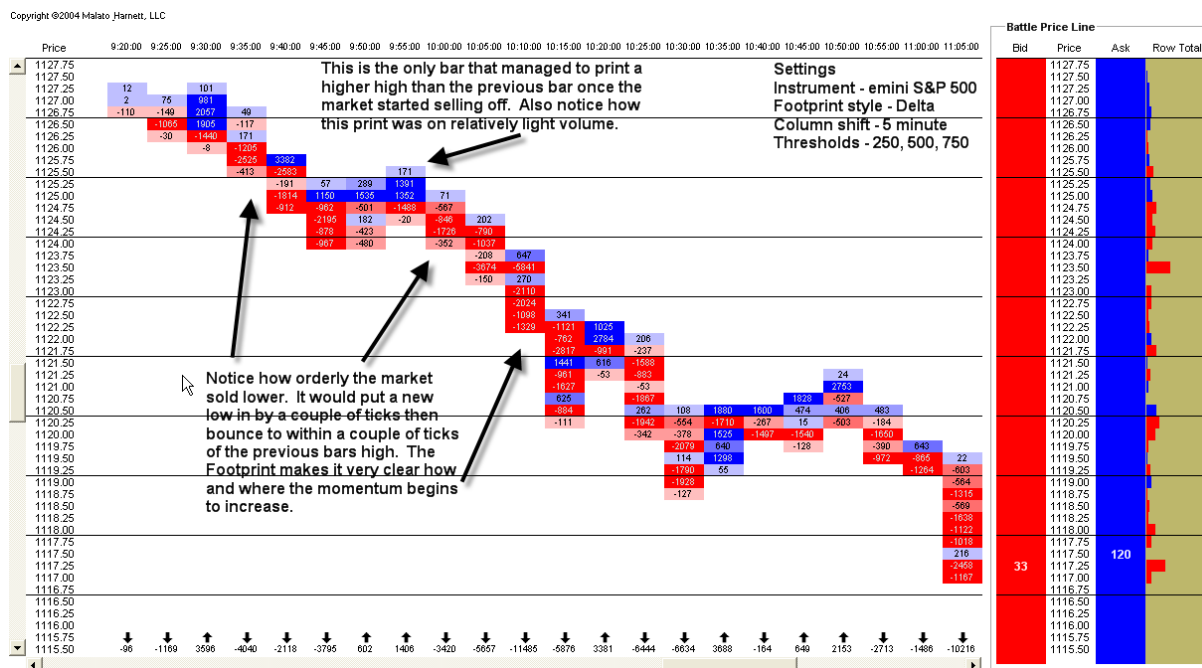


Figure 4-25

The Footprint™ also gives a trader the ability to look back at a specific area to see how much traded or what side of the market it traded on. The Footprint™ are your eyes when you are not glued to the DOM. It catches the trades, classifies them (bid/ask) and prints them to the screen in an intuitive way. This provides scalpers the ability to look back and see how much traded without losing concentration of the moment. This allows for better tracking of the large players and when they are aggressive or trying to squeeze the market. Footprints™ provide all traders a level playing field to see what each other is doing and begins to uncover some of the games large traders play at times.

#### 4.8.2 Column Delta Scalp

Column delta is the sum of all the Footprint™ delta's for a particular bar. There are many ways this can be used. One strategy is to confirm price direction. As price is trending up you would like to see a positive column delta to confirm that aggressive buying is driving price, thus sustaining the trend. The reverse is true for a down trending market. There should be a negative column delta to confirm more aggressive selling. In a rotating market the column delta will typically flip flop back and forth or not show strong conviction either way. This helps to confirm the type of market you are witnessing. If you are witnessing a rotating market but the column delta's are all pointing one direction, then there is a greater probability price will leave the area of rotation in the direction of the column delta arrows. The arrows are there just to give a better visual cue rather than trying to read a positive or negative number.

In the example below, the chart shows the ESZ4 with a tick reversal set four (4). The market is trickling down (notice the column delta's) and finally creates a potential



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**Enter the Tick Reversal**

Enter a value for the Tick Reversal

For a Tick Footprint, this is the number of tick reversals to create a new footprint column.

In the example shown to the right, the Tick Reversal is 2, so a new column was formed when the current traded price went down 2 prices (ticks) from 1098.00 to 1097.

Price

Price	3:50:55	3:51:09	3:51:35
1099.00			
1098.75			
1098.50			
1098.25			
1098.00			
1097.75	0x128	58x1109	397x817
1097.50	438x760	469x0	412x0
1097.25	163x1178		
1097.00	183x500		
1096.75	345x0		

Tick Reversal:

OK Cancel

Down arrow shows reversal taking place

Positive delta during reversal indicates breakout of triangle to the upside

10/5/2004 9:54:40 AM Connected to DTN

**Figure 4-27 shows how price has been trending higher and a surge of buying drives price to new highs with a large column delta value of +11,730. This means 11,730 more contracts traded on the offer during this 5 minute bar which would indicate aggressive buying. The next bar fails to put in a new high, retraced 50% of the previous bars range, and even has a small selling cluster. However, an astute trader would notice the small negative delta of -2,290 for the column. This states 2,290 contracts have been distributed during the price retracement. It's not hard to see that only a fraction of the volume accumulated on the way up was distributed during the retracement. This turns out to be rather bullish, following the principle of higher volume while trending higher and with light volume retracements. With the 12:15 bar closing near its highs, there are quite a few reasons why the market might continue higher.**

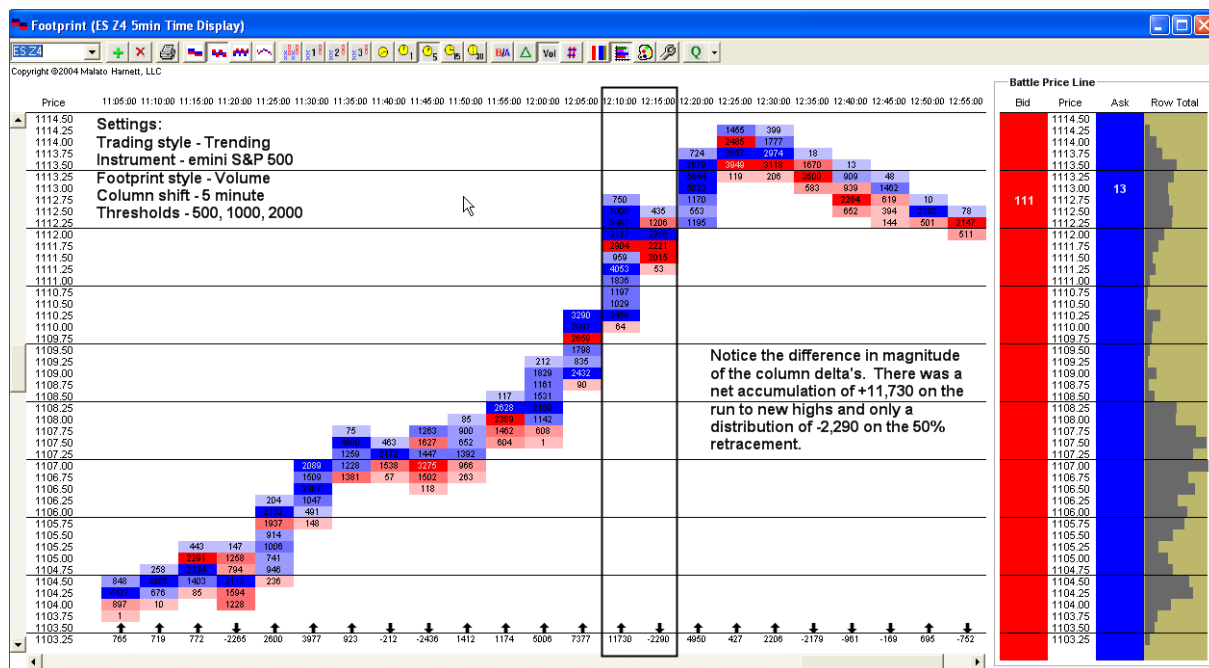


Figure 4-27

## 4.9 Capitulation

### 4.9.1 Skipping Pattern

Capitulation often represents a reversal. It will often occur with extreme volume and an increase volatility. Depending on the type of Footprint™ you are watching, this will be seen differently. The time based Footprint™ will showcase more of the volume portion and the point & figure (tick reversal) based Footprint™ will showcase more of the volatility. The reason for this lies in the basics of how each type of chart treats time. Point and figures underlying premise is to display price action, otherwise known as volatility, not time. Time based charts primary purpose is to display where price travels through time at given intervals. The Footprint™ gives both choices but with volume traded at each price. Color shading will alert the trader as volume progresses into the price. This progression of volume onto price is seen in the time or the point & figure Footprint™.

The point & figure Footprint™ will showcase high volatility when it occurs in the form of a skip pattern. The skip pattern will only be seen when using the point & figure method of viewing the Footprint™. Time based Footprints™ will NOT show the skip pattern unless by a rare chance a gap occurs when closing one column and opening on the next. This doesn't happen much and there is little reason to spend much time on it here. The skip pattern only happens when there is a jump in volatility causing price to flutter along the screen in a skipping like fashion. This can happen when stops are hit or when market participants push price to far to quickly and create a violent counter reaction. It is very difficult to trade the instant this happens, but the value lies in

knowing volatility just increased and that more could be in store for a given market.

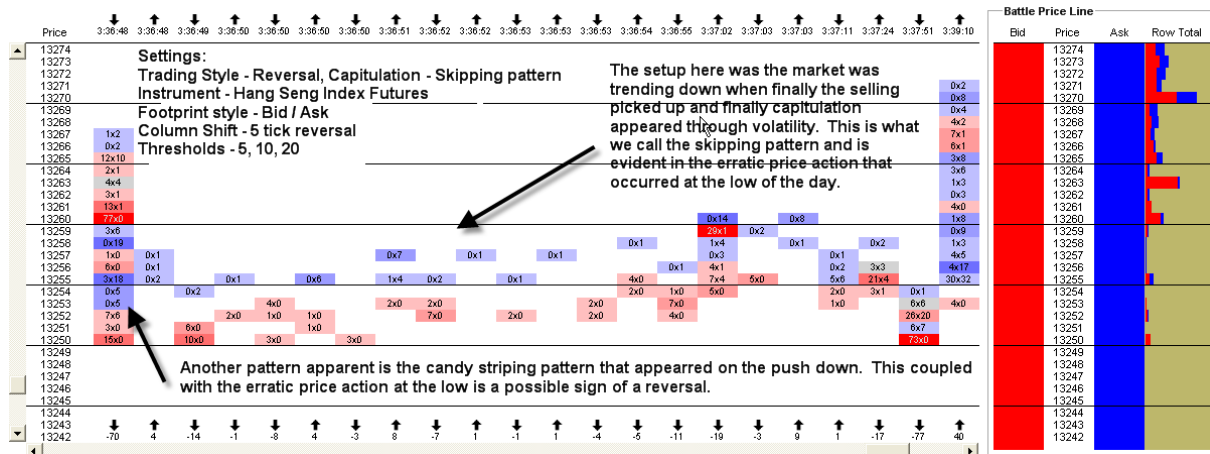


Figure 4-28

#### 4.9.2 Heavy Volume

Heavy volume is witnessed in the Footprint™ in a very clear way. When viewing the volume Footprint™ you will see one number in each cell that represents volume. The important principle to grasp is each Footprint™ in relation to one another. Some questions you might ask yourself are the following: As price trades lower/higher is volume picking up? How does one bars volume relate to another? Are certain prices exhibiting more volume than others? As price trades sideways what is volume doing at the high and low of the trading range?

The Footprint™ will help you answer these questions by providing the necessary data for you to make the decision. Without the Footprint™ the ability doesn't exist to reference this very crucial trade data. For instance, in Figure 4-29 and 4-30 there are two different Footprint™ resolutions of the same move. Figure 4-29 shows how volume dried up as the day progressed and consolidated around the high volume area as seen in the row total distribution area on the far right of the chart. Look at how the increase in volume for the move up is very clear. You can also see more of the volume was occurring on the ask as aggressive buyers were anxious to get in the market and lifted offers.

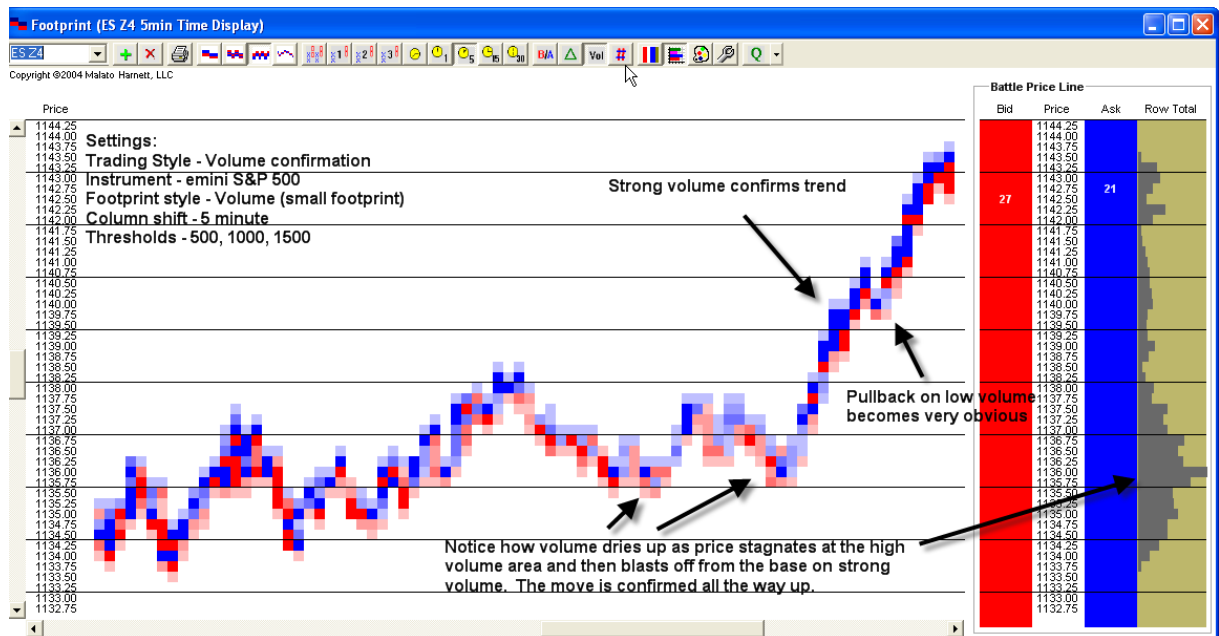


Figure 4-29

Figure 4-30 is just a different Footprint™ resolution with the column deltas applied to each bar. This allows a trader to follow the strength of the trend and monitor changes in supply and demand. In the example below the Footprint™ does an outstanding job at showing when, where, and which side is more motivated on a real time basis.

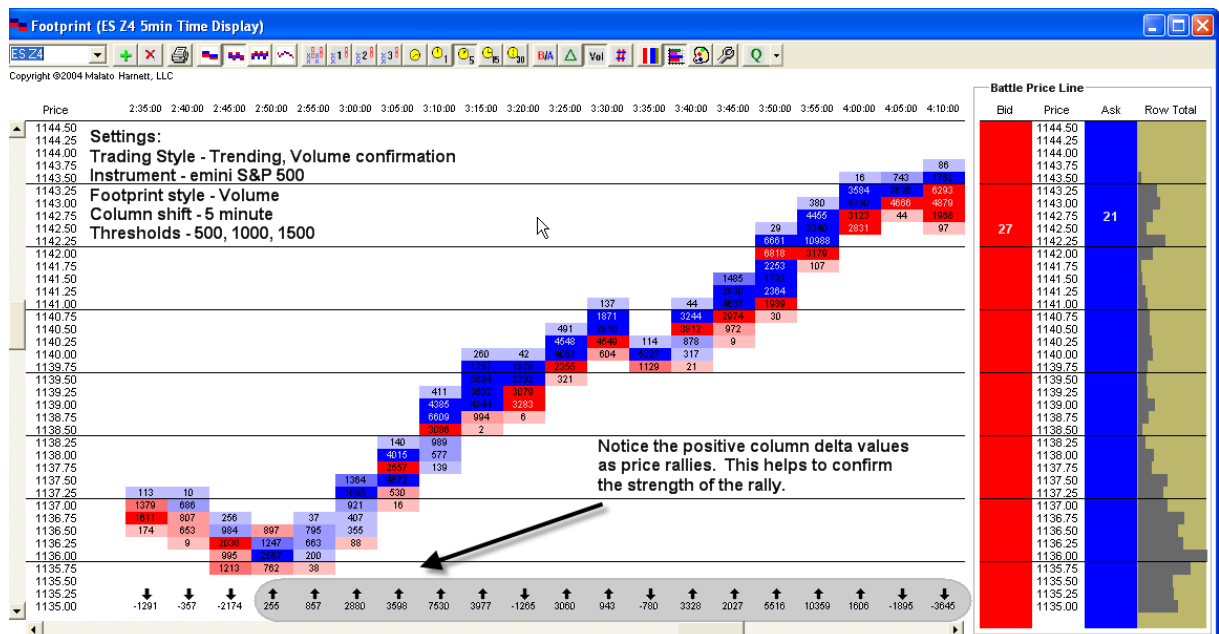


Figure 4-30

## 4.10 Miscellaneous

### 4.10.1 Miscellaneous

**Volume Clusters** – These are areas on a chart where price rotates back and forth and distributes volume. These are best seen on the time based Footprints™. They often become support or resistance during pull backs in trending markets. Using the graphical row total display to the right of the Battle Price Line allows a trader to spot longer term volume clusters by reading the days volume distribution. The best way to view volume clusters is on the volume Footprint™ or the Bid / Ask Footprint™.

**Buying clusters** - These are areas within a bar or series of bars where it is apparent accumulation is taking place. Buying clusters will be sequential blue (usually the darkest blue) Footprints™ back to back. Other times it can be assumed to be a general area of the chart. This is reflected below in the Euro currency futures chart. Here there are back to back Footprints™ in some areas and general buying clusters within a range of prices at other spots on the chart.

**Selling clusters** - These are areas within a bar or series of bars where there is apparent distribution taking place. Selling clusters will be sequential red (usually the darkest red) Footprints™ back to back. Sometimes it can be assumed to be a general area of the chart where the Footprints™ are not back to back.

#### Cluster Strategies

A popular "cluster" strategy is to first recognize what stage of development the market is in - rotational (consolidation) or trend. Ask what has the market been doing up until now. Trending or rotating back and forth? Look to see if clusters are developing within the bars and then reference the row total histogram. Often times the clusters develop at important areas of a distribution, helping to confirm acceptance or rejection of that particular area.

You will tend to see more clusters in trending markets than you will in rotational markets which is very intuitive. Trending markets exemplify direction and strength while rotational markets exemplify lack of conviction and are often directionless.

Another is a support/resistance strategy. Use the cluster areas as support and resistance on pullbacks. In the buying cluster chart below, if price were to pull back to the 1.2372 - 78 area, there might be possible support.

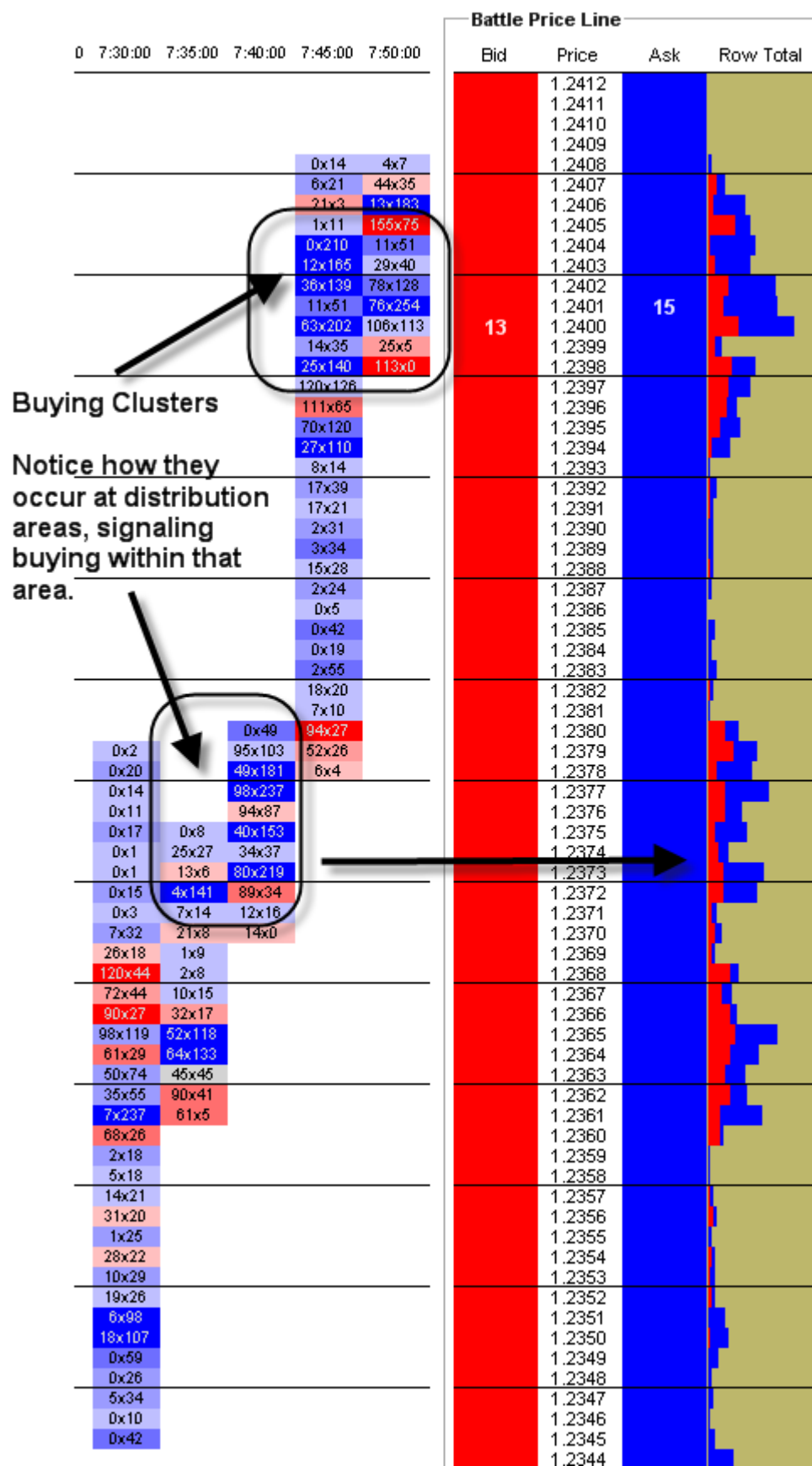


Figure 4-31

Buying and selling clusters generally represent conviction on the part of the initiator. In the chart of the 10 year note below, when selling clusters were apparent usually price travelled lower. Vice versa with buying clusters. Particularly, notice the heavy buying cluster on the last probe to the lows. A new low was not established and price began to return to where the move started. In summary, clusters assist in gauging momentum on directional moves and serve as potential support or resistance during retracements.

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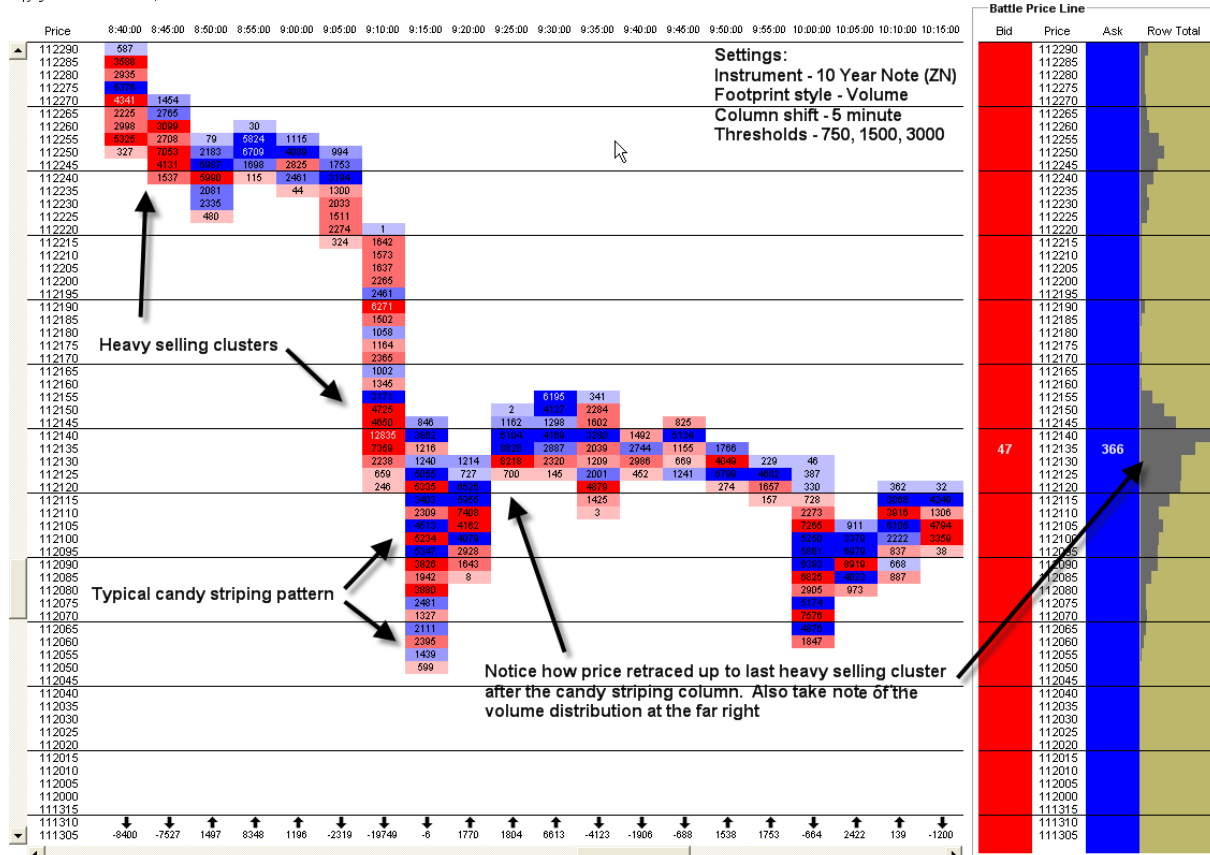


Figure 4-32

# Part

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V



## 5 Indicator / Price Chart Strategies

### 5.1 Indicator / Price Chart Strategies

If you are using the stand alone version of MarketDelta™ this chart comes standard. It plots price against the MarketDelta Indicator™, which is the total of all buying and selling pressure for a particular session. It creates a graph of buying/selling pressure based solely on volume and plots it against price. This allows a trader to follow the aggressor throughout the trading session. This chart continuously updates the strength or weakness of the aggressor at all traded prices in real time. Graphing MarketDelta Indicator™ this way presents a new concept called *volume trend*. Volume trend represents the net flow of trades on the bid or ask throughout the trading session, enabling you to follow in real time on which side of the market the aggressor is more active. The insight this provides is unprecedented for active traders.

Invariably throughout the trading session, the flow of volume from the bid to offer or vice versa will shift prior to price and alert the trader to a possible shift in momentum. This chart helps to provide a way to follow the flow of volume and confirm the price trend.

A strategy for using this chart is to show when price and volume start diverging, giving a signal to the trader that the current price run might be reversing. The slope of these lines in relation to one another is what is important and not the crossover action between them. This is because the lines are plotted on two totally different scales.

The Indicator / Price Chart allows you to gain a perspective on the level of buying or selling pressure as the session progresses. By charting both price and volume trend, the trader is more acutely aware of when price trend is true and when it might just be a head fake. The trader will benefit by having the ability to look back throughout the trading session to gauge where price and volume trend have been and better understand the current conditions in the market.

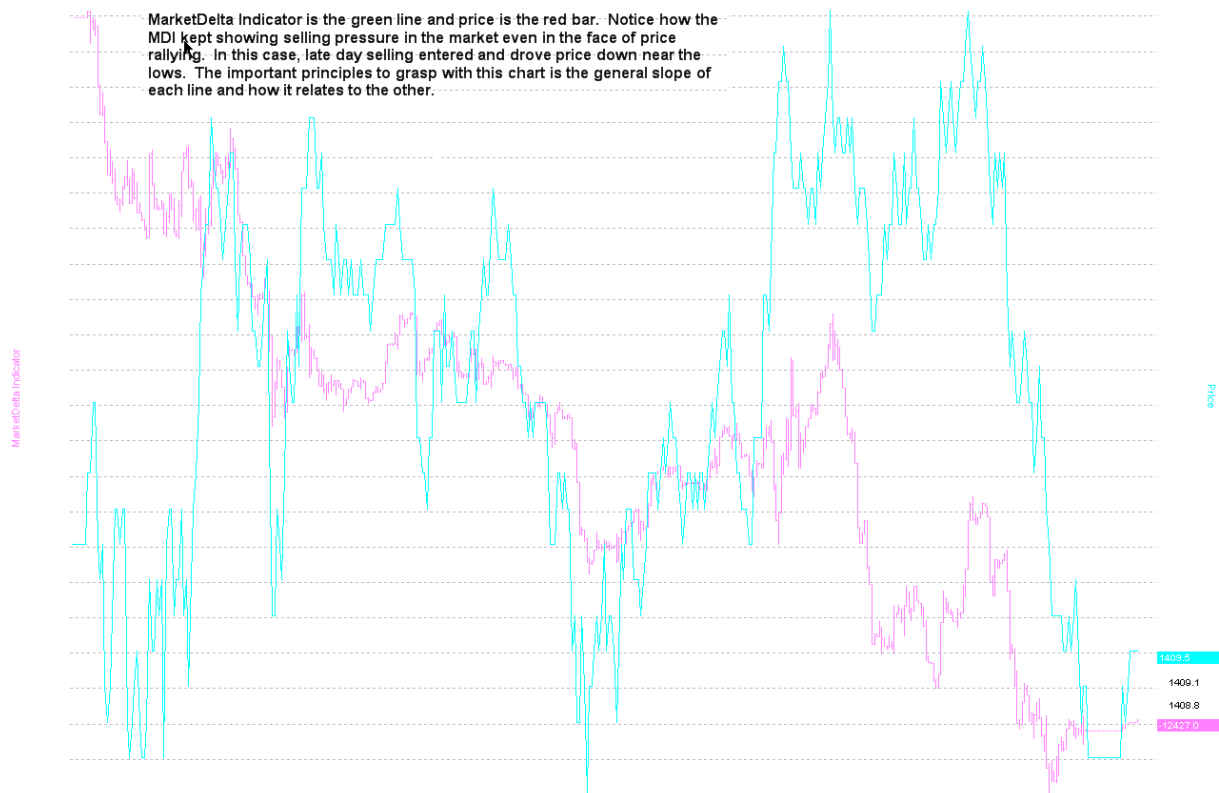


Figure 5-1

In Figure 5-2 the MarketDelta Indicator™ (MDI), shown in green, was very predictive of where price would end up going. Sometimes this indicator is leading and other times it is lagging. The important concepts to be remembered from this chart are how the MDI continued to trend up even as price traded lower and put in a double bottom. Knowing that a majority of volume is flowing to the offer as price tests a low shows a lot of conviction from the buyers. After testing the low, prices traded swiftly higher and the MDI began to increase at a faster rate, possibly signifying short covering. The Indicator/Price chart isn't necessarily a scalpers tool, but rather a tool to confirm directional bias and strength of a trend, or possibly lack of trend.

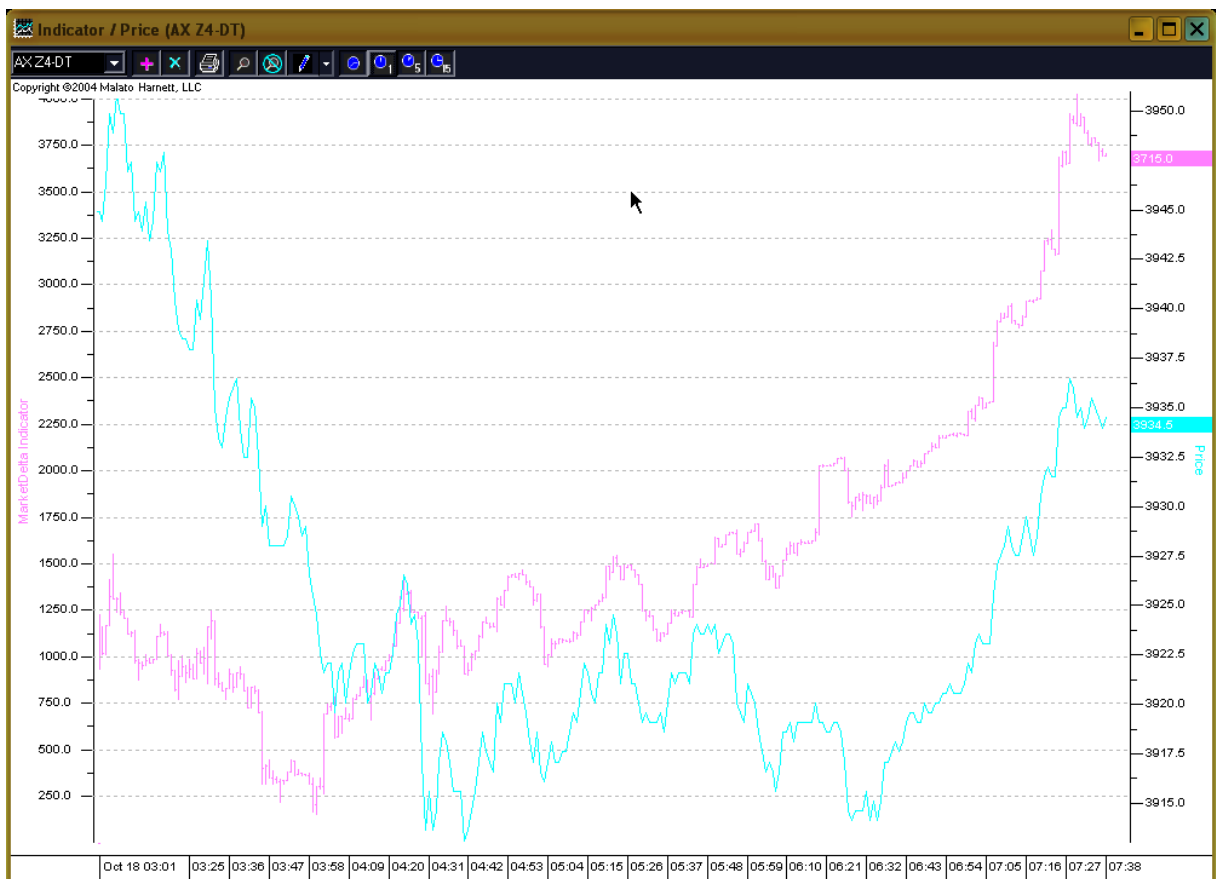


Figure 5-2

# Part

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# VI

## 6 Row Total Distribution Strategies

### 6.1 Row Total Distribution

Row total distribution is a valuable tool because it lets you see how the trade is developing throughout the day and where all the volume is being done. If you are familiar with Market Profile® then these distributions will be similar with respect to the volume profile it produces. MarketDelta™ takes it a step farther and analyzes the volume to determine if it was buyer or seller motivated. This data is represented in the delta distribution. This is a real time view of each price and shows whether more buying or selling is occurring at each price. More buying is classified by more volume occurring at a specific price when it was the offer price and more selling is classified by more volume occurring at that specific price when it was the bid price. Over the course of the day buyers and sellers step in to defend certain prices and it becomes very obvious through the delta distribution.

For the sake of not duplicating much of the educational material that is already out there on trading distributions, we figured it would be good to just provide information on what is unique to MarketDelta™. We will focus on the delta distribution because it is very unique to the MarketDelta™ concept. All delta distributions classify whether more selling or buying occurred at each price. More selling is represented in red and more buying in blue. In Figure 6-1 the blue bars are all to the right of the axis which represents more buying at those prices. The red bars represents more selling at the respective prices.

Figure 6-1 is September 10th, 2004 for ESZ4. It was a generally bullish day that formed a double distribution. The open was near resistance around 1118.00. Price immediately sold down to the 1114 are and quickly bounced back and spend time consolidating around the open. Notice how once price broke above the 1119.00 area the "delta" column represented aggressive buying all the way up to the highs. Next resistance was the 1124 - 26 area. Very little net selling occurred at any price in between 1118.50 and 1126.00. This confirms strength in the trend. Another strategy that can be gleaned from this chart is if price where to pull all the way back to the 1118 - 1119 area it could be a point where the buyers defend. The 18-19 area also would correlate to the high volume area for the lower distribution and offer additional support to the possible retrace. This is were all the aggressive buying began and is evident in the delta distribution.

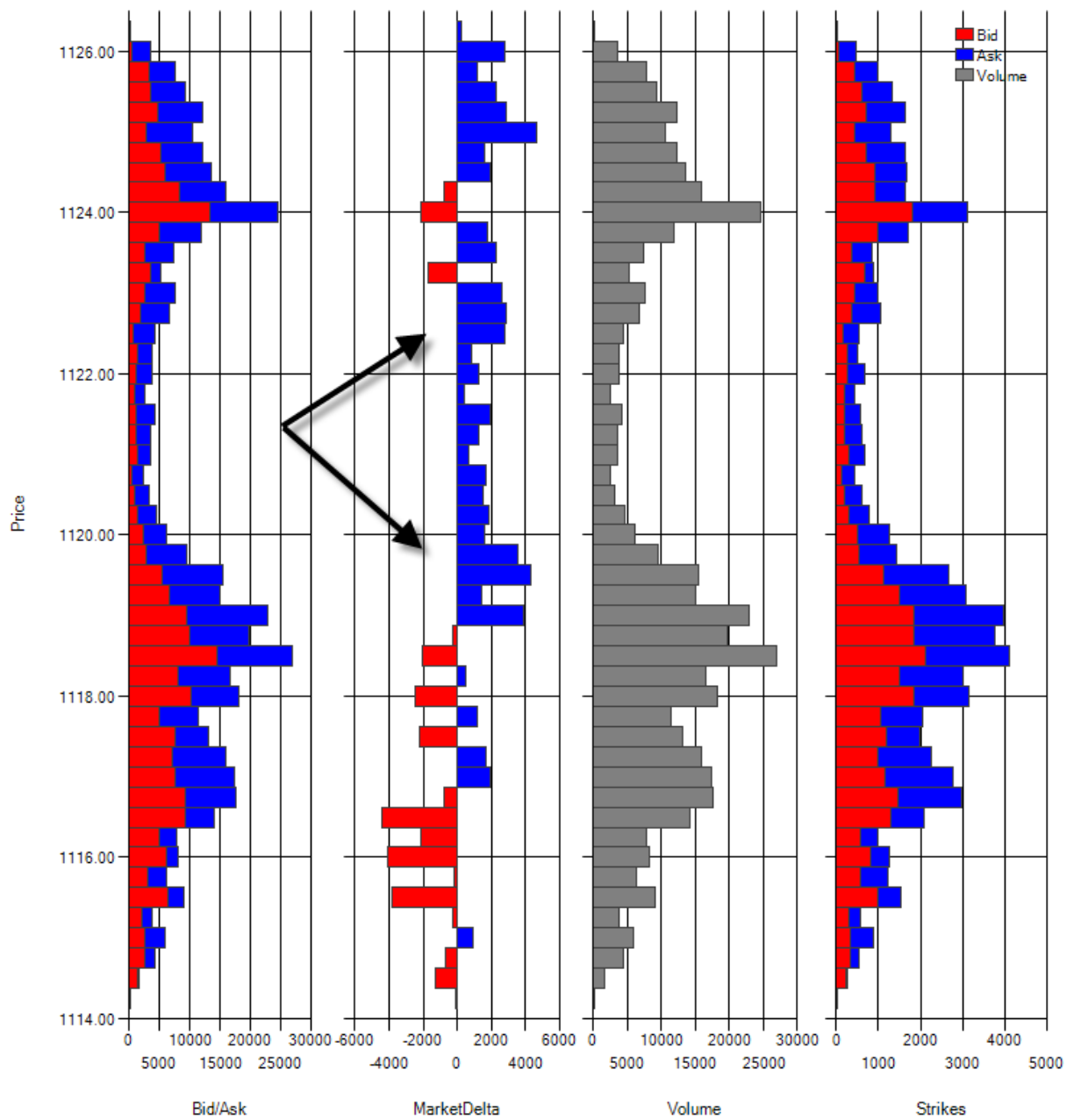


Figure 6-1

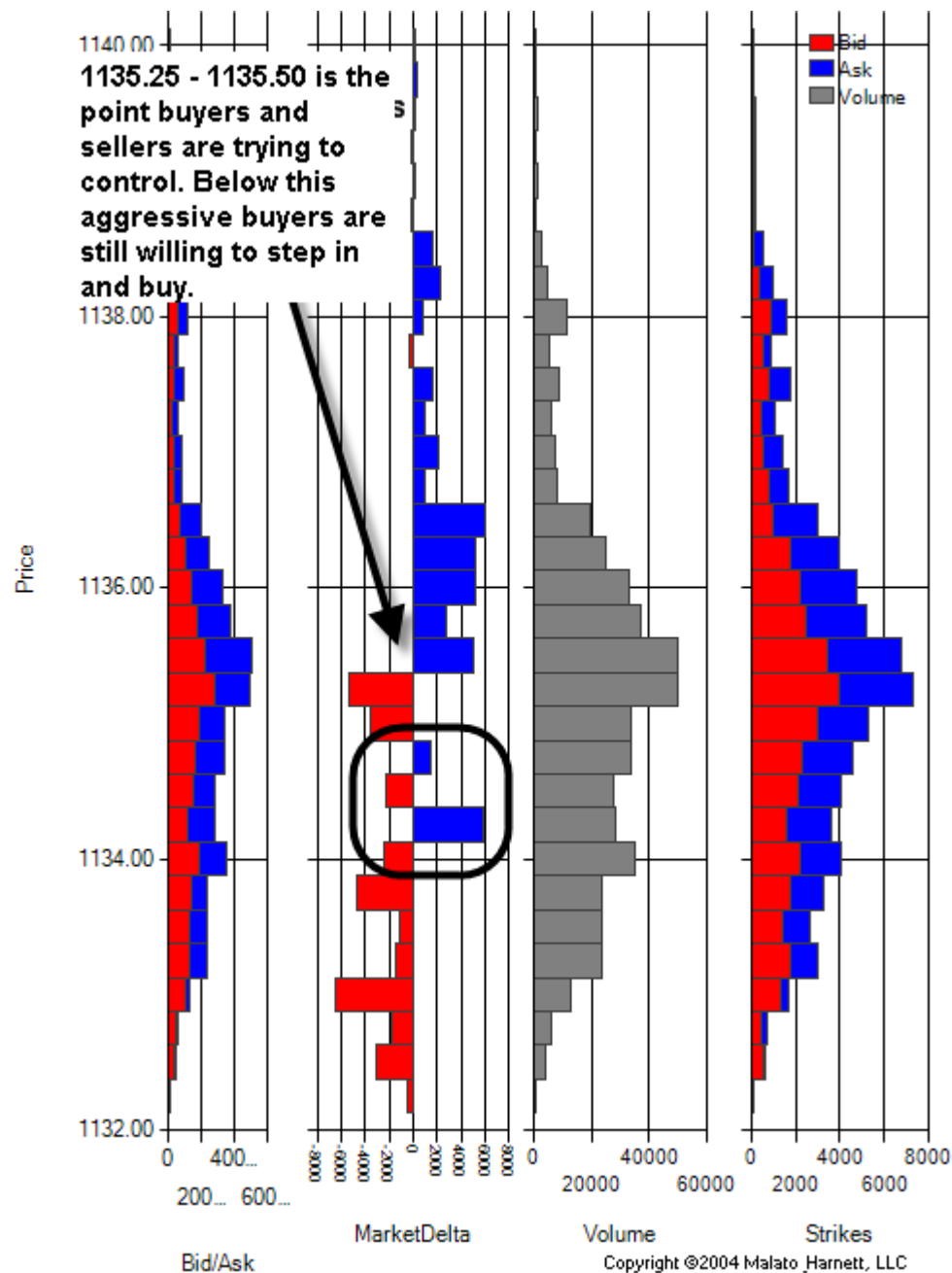


Figure 6-2

It's always very interesting to see how the delta distribution develops, especially around the high volume areas of the day. It is very typical to see net buying (blue) at the high prices and net selling (red) at the low prices. In Figure 6-3 the Bund from September 24th, 2004 shows how price formed a normal distribution. Notice that there seemed to be more net selling in the thick part of the distribution. This is especially evident at 115.85 and 86 prices. Looking at the delta distribution it becomes clear that sellers began to exert selling pressure near the high of the distribution.

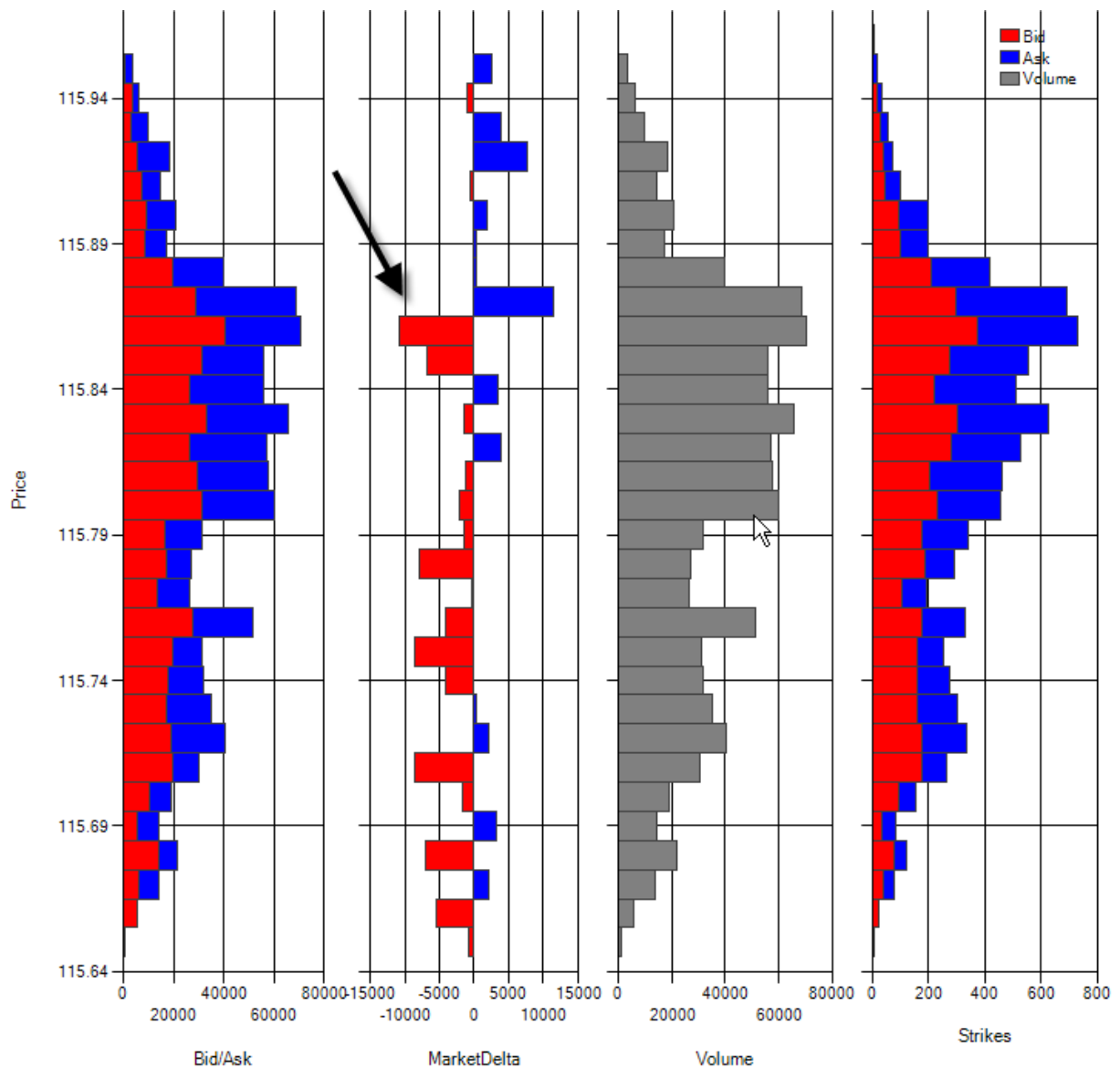


Figure 6-3

Figure 6-4 shows a day where the market spent most of the day in the lower half of its range before rallying into the close. All the blue bars in the highlighted area support the fact that net buying was occurring as price was rallying to new highs. Only after price reached the 1142.00 area did it become more challenged and supply begin to become a factor.



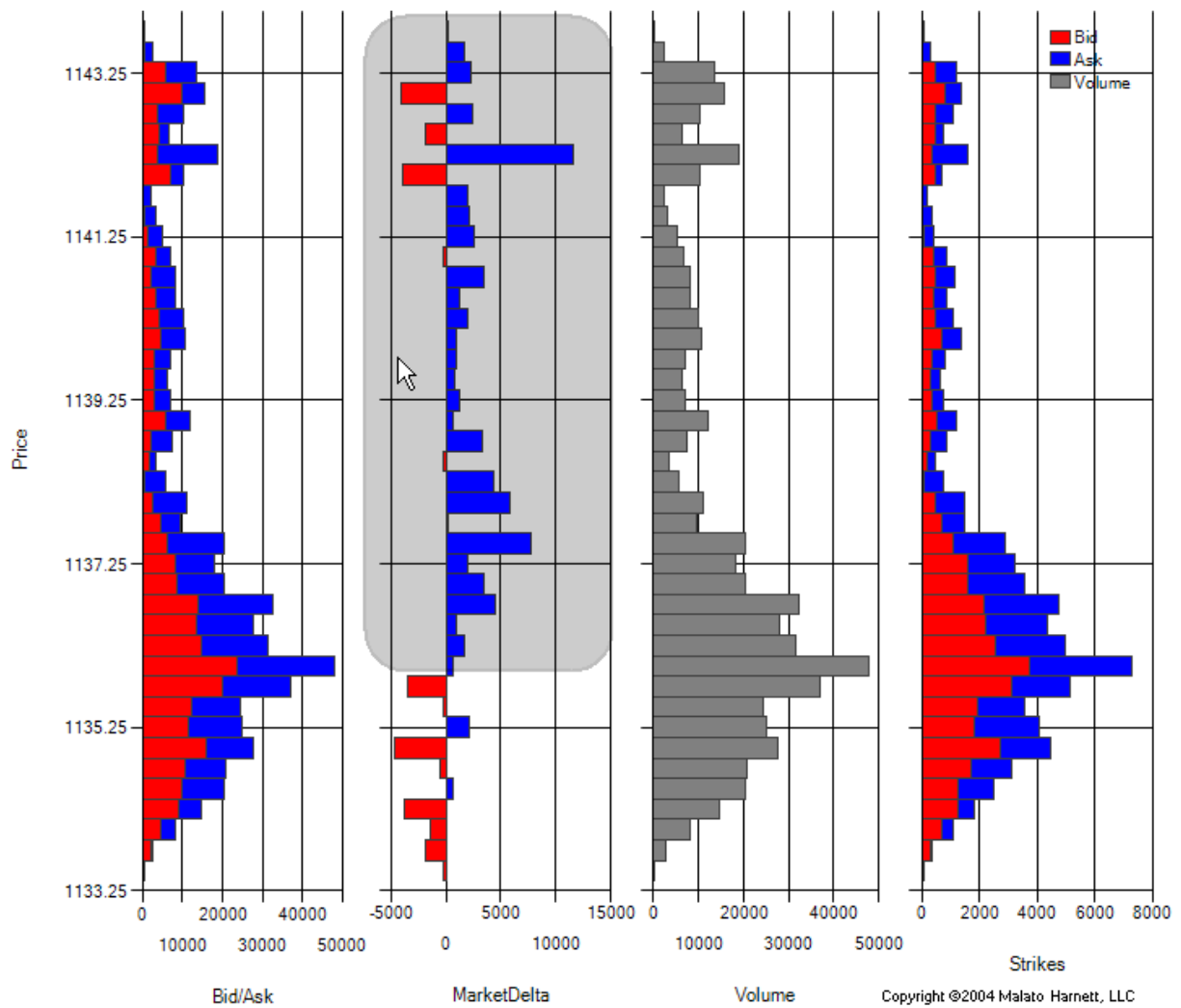


Figure 6-4

# Part

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# VII

## 7 Conclusion

### 7.1 Conclusion

If you haven't figured it out by now, the Footprint™ chart is very unique and superior to all other charts available. The unique characteristics of the Footprint™ require study and diligent use, but the time and effort will truly be worth it. We recommend making full use of this guide and all the education material available at [www.marketdelta.com](http://www.marketdelta.com).

The Footprint™ is being adopted internationally and has been used by traders in over 40 countries. There is no doubt traders are finding it indispensable. One of the ways organizations are using it is to train traders on price dynamics and patterns. By showing them the Footprint™ it speeds up the time traders need to begin understanding price/volume relationships and supply/demand relationships. They are doing this because of the superior way in which the Footprint™ relates price dynamics to the traders eye.

For individual or group training, please contact us at [sales@marketdelta.com](mailto:sales@marketdelta.com).

#### *Educational Materials at marketdelta.com*

- MarketDelta manual, FAQ's, and help files
- White Paper that explains many of the premises MarketDelta™ is based upon
- Videos covering the general functionality of all the components within the software
- Videos highlighting some of the strategies in this guide
- Cheat sheets providing guidelines and suggestions for common settings
- Miscellaneous academic papers covering many of the concepts encapsulated within the Footprint™ and MarketDelta™

MarketDelta™ community support is available at the following Yahoo™ message board.  
<http://groups.yahoo.com/group/MarketDelta/>

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