

Finding High Probability Lines

By Greg Fisher

Median-Line-Study.com

Median Line Study: Finding High Probability Lines

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I wish to thank my wife for putting up with endless hours of me staring at price chart after price chart. Her support and understanding has been a priceless asset to me.

I wish to thank my children for giving me the inspiration to write this book. I hope that in doing so, they see that anything is possible.

PART I

Introduction

History of the Median Line

Dr. Alan H. Andrews developed a trend line technical market analysis tool called the Median Line method, more commonly known today as “Andrews’ pitchfork”.

Andrews reportedly made over a million dollars in a few years back in the 1920’s trading commodity futures after graduating from MIT with a degree in engineering.

Andrews credited Roger Babson with the idea of applying Newton’s third law of motion to economics as the basis for much of his work. Babson graduated from MIT with a degree in engineering in the late 1800’s. Babson soon began work on adapting Newton’s law, “For every action, there is an equal and opposite reaction”, to the financial markets.

Later in life, Andrews created a course entitled the “Action-Reaction Course”. The Andrews course sold for \$1,500 in the 1960’s and 1970’s. The course was 60 pages in length and used a case study approach. Andrews stated in his course:

“...drawing a single line will enable you to know where the price of any stock or any future is now headed and the probable time it will reach there.”

~ Dr. Alan Andrews, Action-Reaction Course

Andrews called the line the Median Line – a line drawn on a price chart after three alternative pivots in price occur. The original course can be somewhat difficult to interpret, and not many who have encountered the method understand its application. However, tools for “Andrews’ pitchfork” can be found in many of today’s trading software. Several sources with basic information concerning the Median Line method can be found on the internet. But, what exactly is the method suppose to reveal? Andrews stated the method would:

“...enable the user to be one of the few who can tell where the prices are headed, and the place they will reach about 80% of the time, and when approximately that place will be reached.”

~ Dr. Alan Andrews, Action-Reaction Course

Andrews also stated in his course that not only was there a high probability price would reach the line, but a change in trend often occurred at or near the line. Which brings a number of questions to mind:

- Do prices always return to the Median Line with that kind of accuracy?
- What is the probability of prices reversing near the line?
- Has market behavior changed since the 1960's?
- Is market behavior different now than it was in the 1920's?

Why Study the Median Line?

Traders such as Andrews in the "pre-computer" era hand charted many commodities or securities often receiving charts in the mail only once a week. Traders would update the charts by filling in the price bars and using simple techniques such as trend lines to get a feel for the market.

Today's computers have made a variety of indicators derived from complicated mathematics accessible to technical traders. The indicators are designed to give the trader an idea of where prices could be headed and when a trend will end or begin based on price history. Today, many traders watch live data streamed to their computer and evaluate market action as it unfolds.

With today's technological advances, are the trend line techniques of the old days outdated and no longer useful? Have the markets advanced beyond the ability to use trend line methods such as the Median Line to gage market movement?

Many are aware of theories involving the "random walks" of prices, and "efficient markets". The theories are based on the idea that market prices reflect all information currently available, and prices adjust quickly and accurately. The theories, if correct, would effectively dismiss any sort of "edge" gained by technical analysis. Interestingly enough, the ideas became popular around the time Andrews offered his course. More recently, the idea of "behavioral finance" has risen to the scene, which suggests human emotions are factored into market behavior. Can you say "fear" and "greed"? Are investors and traders rational or irrational? I don't think that one will be answered for a while. Does it matter?

Do prices return to the Median Line 80% of the time ALL the time? Or, does it depend on the conditions involved?

“When we speak of any scientific law, we mean a statement that a relationship has been observed among certain given conditions. We mean “if these conditions now, then those conditions follow, and can be expressed mathematically”. We have “order” through which we can know the outcome from these conditions. We can therefore take advantage of this knowledge, and thereby progress and profit.”

~ Dr. Alan Andrews, *Action-Reaction Course*

What are the different conditions behind applying the Median Line to a price chart?

To name a few of the basic and more obvious conditions:

1. From which pivots on the chart is the Median Line drawn?
2. The different markets themselves – do all of today’s markets act similarly?
3. The time frame being studied – monthly, weekly, daily, intra-day charts. Does it matter?

Good questions.

Determining the Basic Probabilities

"I hear and I forget. I see and I remember. I do and I understand."

~ Chinese Proverb

The first several charts in Andrews’ original course illustrate the Median Line – and only the Median Line. It isn’t until later in the course material where the Median Line parallels show up on charts. To begin understanding the Median Line method, focusing on the one line – the Median Line - helps keep things simple.

A simple study of Andrews Median Line can give a quick understanding of the probabilities associated with the claims Andrews made in his original course. The method can be applied to any of the financial markets such as individual stocks, forex, and futures.

The markets are a game of probabilities. Thinking in terms of probabilities will enhance the trader’s ability to play the game. Andrews definitely thought in terms of probability. In fact, in the chart-filled 60-page original course, the word

“probability” shows up about 40 times! The following illustrates Andrews’ view of probability and how it relates to the markets:

“While it is true that few things are certain to happen in the future at a definite time such as the time that a certain person will die in the future, this mathematical probability has made tremendous profits for the insurance concerns that use it, as well as similar profits for investing individuals who employed it.”

~ Dr. Alan Andrews, Action-Reaction Course

Requirements

To conduct a basic study of the Median Line method, access to price charts either from charting software or free charts available on the internet or other sources can be used. Many charting software packages have “Andrews’ pitchfork” as a drawing tool. The pitchfork is so named because its three parallel lines resemble a farmer’s pitchfork. Although it is understood that Dr. Andrews was not very fond of the term, “pitchfork”. For that reason, the construction will be referred to as, “Median Line set”.

The Median Line is the center line of the set. For the sake of simplicity, the “fork” will be set aside and the focus will be on the Median Line.

PART II

The Median Line

The Median Line – A Definition

The creation of the Andrews' Median Line is quite simple, but first a definition of the terms involved is in order.

“Median Line (ML) – Used to signal change in trend when price touches or pass these lines, under specified conditions.

Pivot (P) – a turning point. It is the extreme on a bar chart where a change in trend takes place.”

~ Dr. Alan Andrews, Action-Reaction Course

To draw Andrews' Median Line, first identify three consecutive, alternative pivots on a price chart. Remember, pivots are extreme prices on a chart where a change in trend takes place.

The pivots used to create the Median Line follows the sequence: **high, low, high** or a **low, high, low**. To draw the Median Line:

STEP 1. Label the pivots in sequence P0, P1, P2

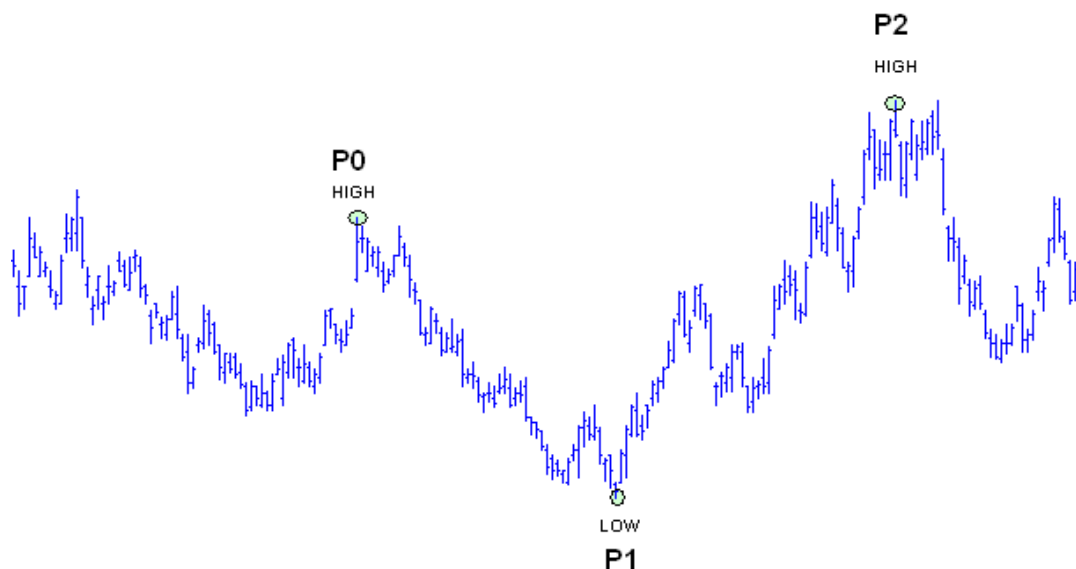


Figure 1. Identifying and labeling pivots.

STEP 2. Find and mark the midpoint of line P1-P2 with a dot or an “X”. If you are drawing the Median Line by hand, simply use a ruler to draw a light line between P1 and P2, and identify the mid-point between P1 and P2. Erase the line after you mark the midpoint with a dot or an “X”.

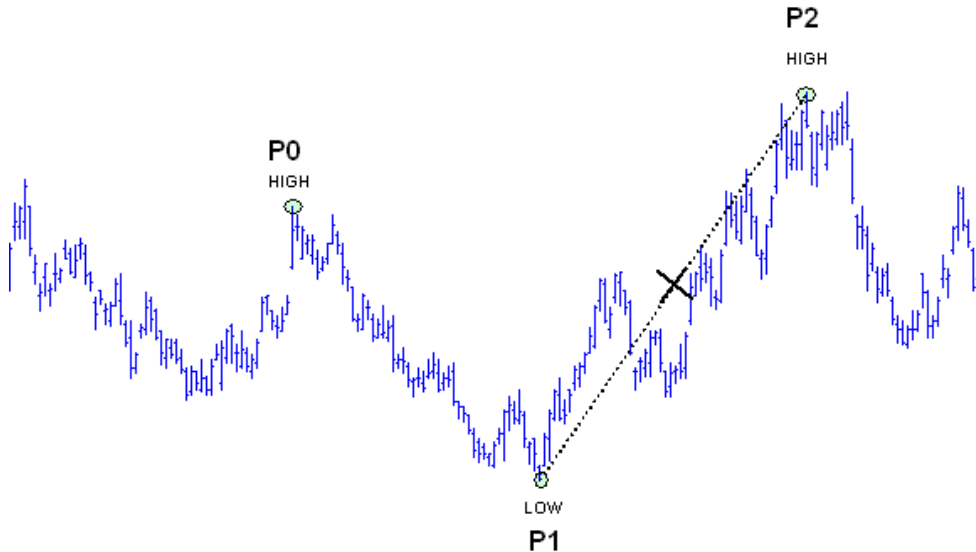


Figure 2. Finding the mid-point of P1 and P2 with a ruler.

If you have access to charting software, the mid-point can be found by drawing a line from P1 and P2 and by using a 50% tool or Fibonacci retracement tool, by starting at P1 (0%) and ending at P2 (100%), the 50% line will intersect the line between P1 and P2 at the midpoint. Mark the midpoint with a dot or an “X”. Erase the line and 50% tool.

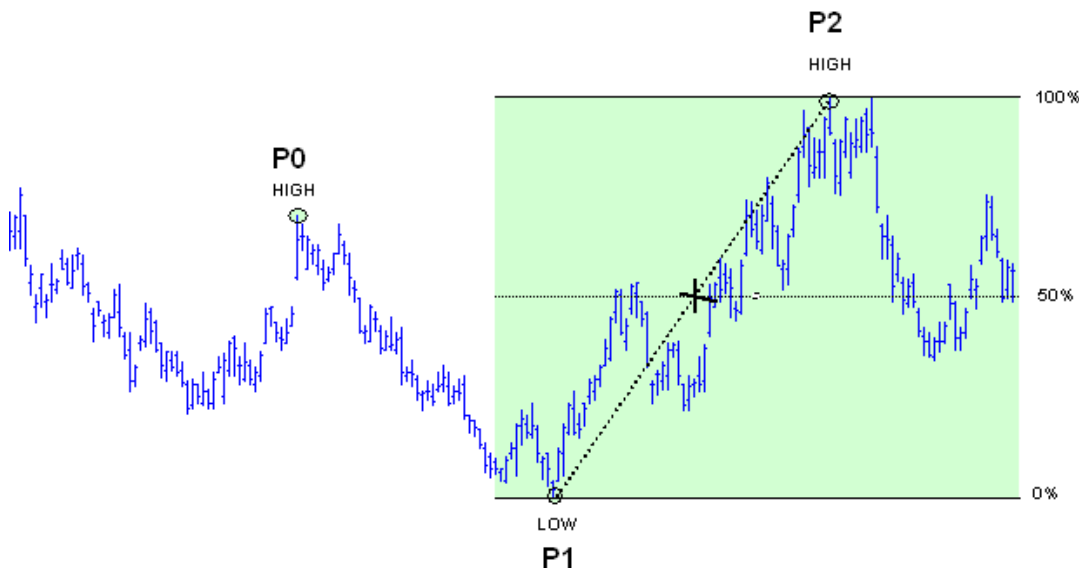


Figure 3. Finding the mid-point of P1 and P2 with charting software.

STEP 4. Draw a line from P0 through the midpoint between P1 and P2 and extend the line. This is the Median Line.

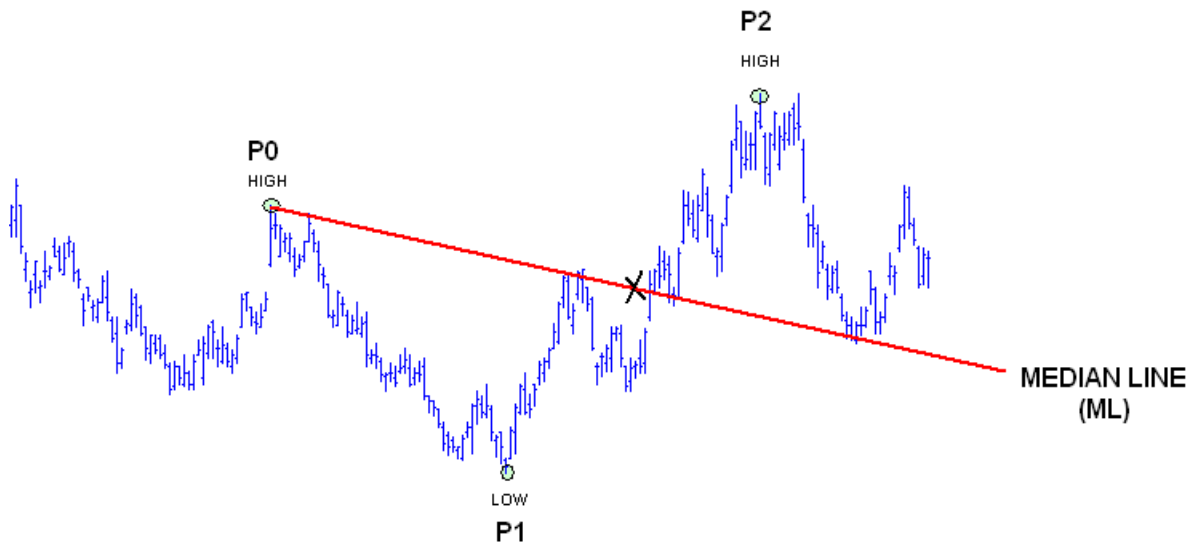


Figure 4. Drawing the Median Line.

The Median Line is complete. It is really that simple! The Median Line is described by referring to the pivots used to create it. For example, the Median Line drawn from P0, P1, and P2, is referred to as P0 ML P1-P2. As more ML's are drawn on the same chart the ability to distinguish between them is important. The above is a down-sloping Median Line. The figure below illustrates an up-sloping Median Line. Dr. Andrews stated there is a high probability that prices will return to the Median Line, and a high probability prices will change trend near the Median Line. Will it here?

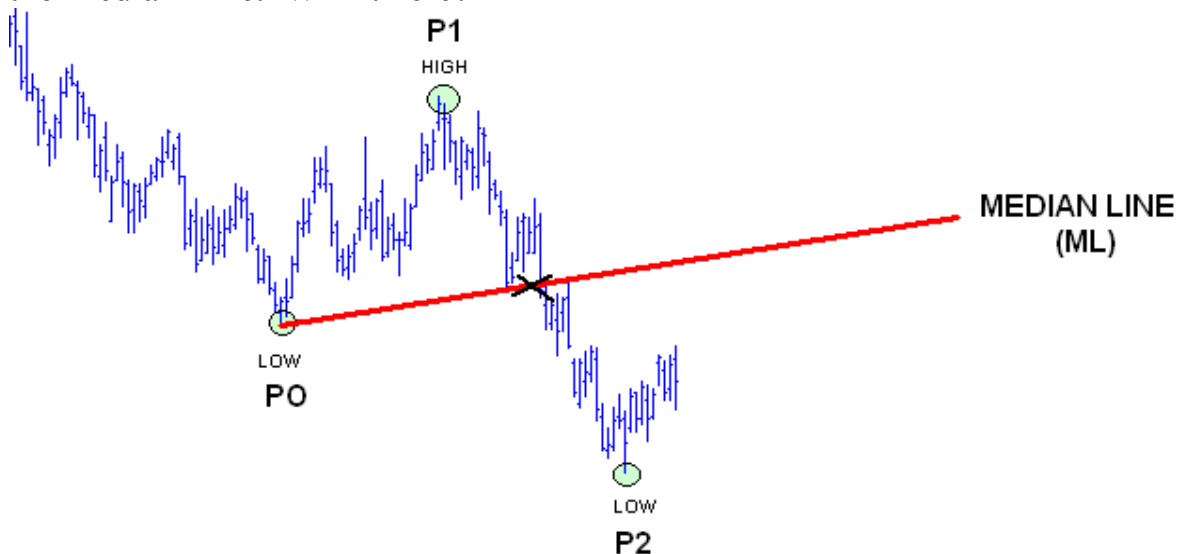


Figure 5. Drawing an up-sloping Median Line.

Defining Pivots and Trend lines

Now you know how to draw the Median Line. Now, how do we determine the proper pivots to anchor the Median Line? This is an often asked question, and the first difficulty imposed by the method. In hindsight, pivots are fairly easily identified on a chart by clear changes in trend. But in real-time, what are the IMPORTANT pivots? Many methods can be used to determine important pivots. Personal preference after much PRACTICE and OBSERVATION is often the best.

Major pivots and minor pivots occur on price charts. For the purposes of this basic study we will be concerned with pivots which are true reversals in trend – prices go up, stop, and head back down, or prices go down, stop, and head back up. Major reversal pivots are typically very noticeable changes in price direction that occur at the beginning of a price trend and are typically easy to spot when studying past price data. Minor pivots occur within a price trend due to price fluctuations and are not as easy to “see”. For the purpose of simplicity, major pivots will be the focus of this study. The easiest way to determine major pivots on price charts is by using basic trend lines.

A trend line is an indication of levels of support and resistance. Trend lines are helpful in determining acceptable valuation levels based on the perception of the market players. As the perceptions of value change, the support and resistance levels created by trend lines can be penetrated. Penetration of a trend line can result in a trend reversal.

Drawing a trend line is one of the most basic tools for the technical trader. Two basic trend lines are possible; an up-trend line in the case of rising prices, and a down-trend line in the case of declining prices. If prices are not going up or down, they are going sideways, or consolidating.

Trend line penetration – a simple, straight-forward way

A pivot can be determined by observing occasions where price penetrates a previous trend line. A pivot in this sense can be described as:

A high or low point created by a reverse in price direction that supersedes the previous trend by penetrating the previous trend line.

Drawing an up-trend line where price is consistently rising

1. Draw a line from the lowest low, up to the highest minor low point preceding the highest high (green line on figure 6 and 8).
2. Make sure the line does not pass through prices in between the two low points just drawn.
3. Finish the up-trend line by extending the line.

Drawing a down-trend line where price is consistently falling

1. Draw a line from the highest high down to the lowest minor high point preceding the lowest low (blue line on figure 6 and 8).
2. Make sure the line does not pass through prices in between the two high points just drawn.
3. Finish the down-trend line by extending the line.

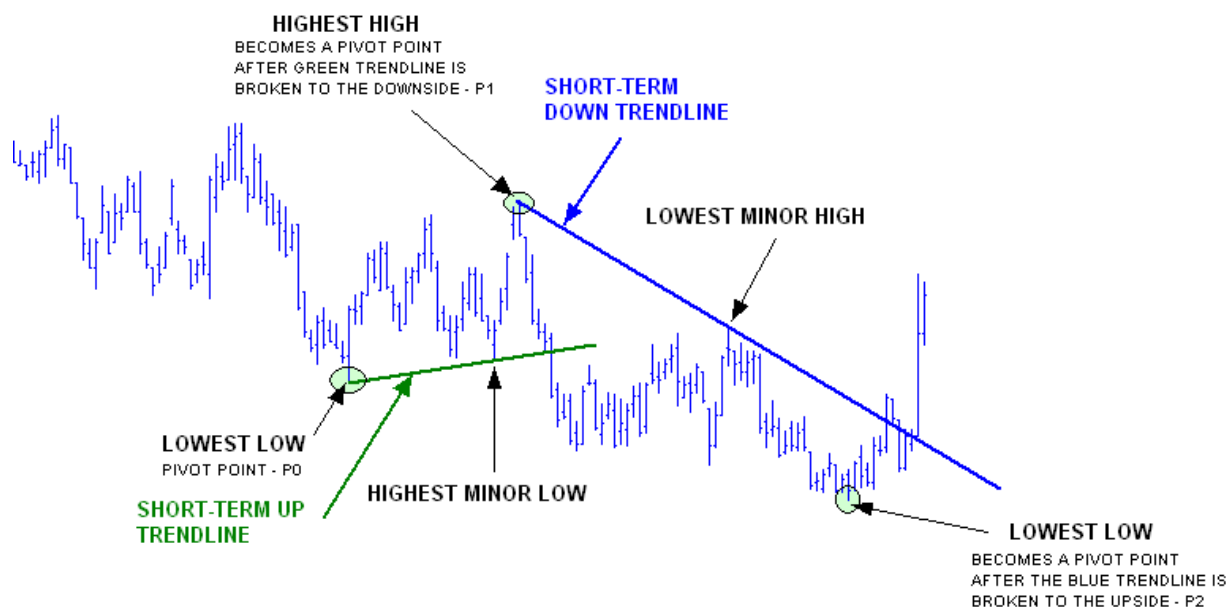


Figure 6. Up and down trend lines.

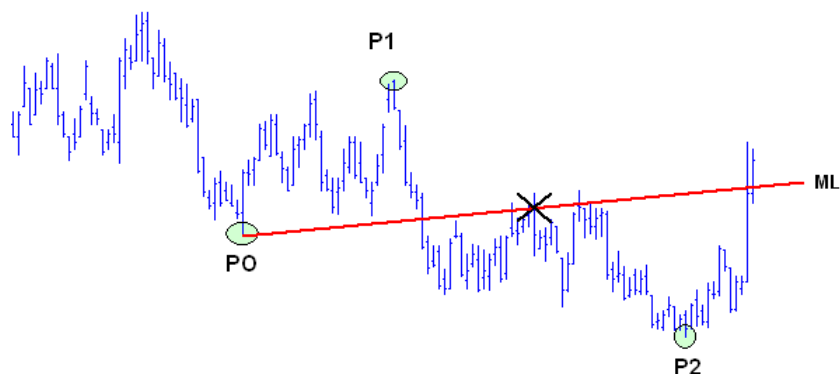


Figure 7. Figure 6 with Median Line.

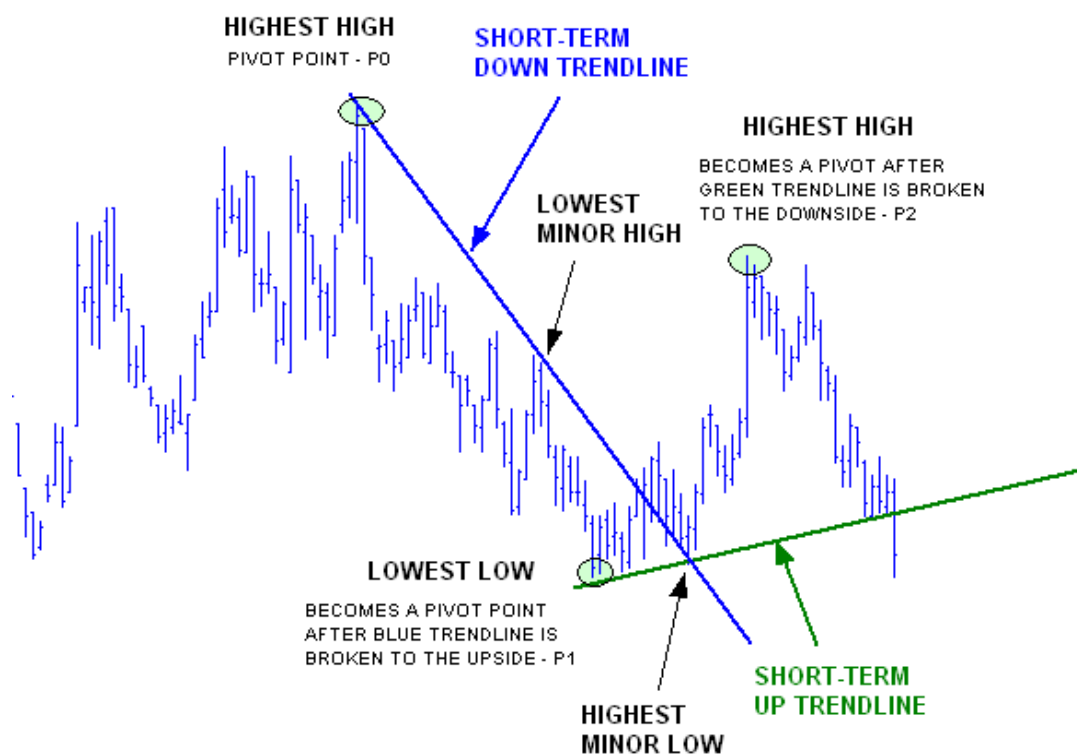


Figure 8. Up and down trend lines.

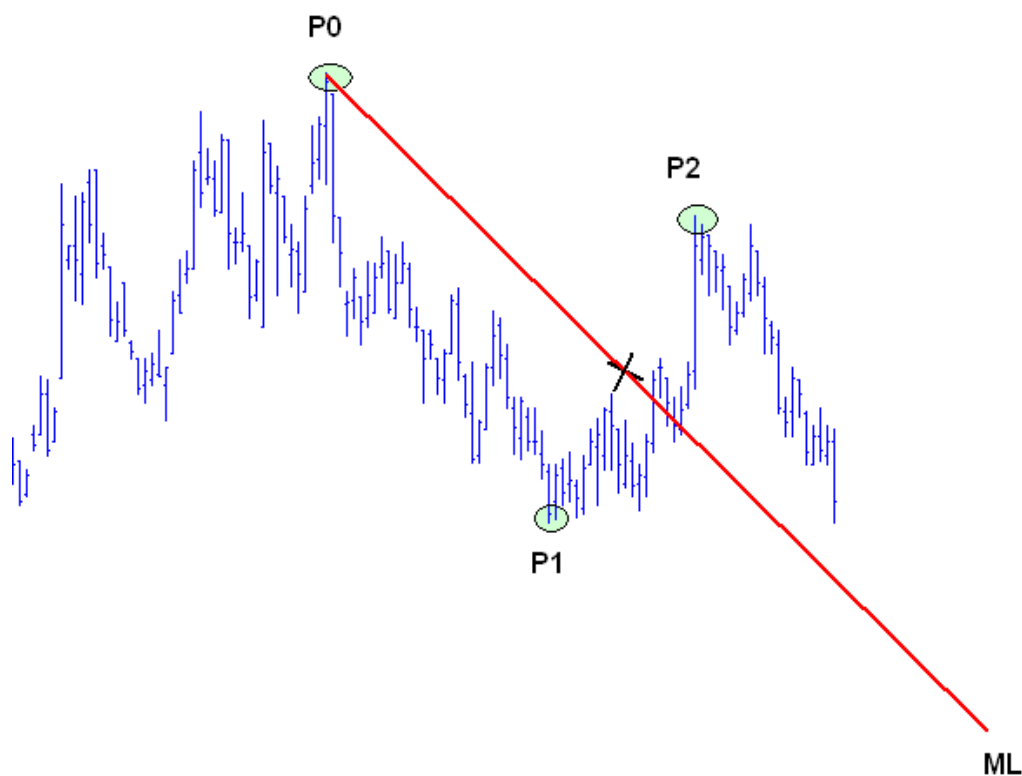


Figure 9. Figure 8 with Median Line.

The time frame under study is an important consideration when drawing trend lines. For any chart under study, typically three different time frames apply: short-term, intermediate-term, and long-term. Trend lines for each time frame are apparent on nearly every chart whether it is a monthly, weekly, daily, or intra-day chart. When drawing trend lines, you must first choose what time frame you intend to study.

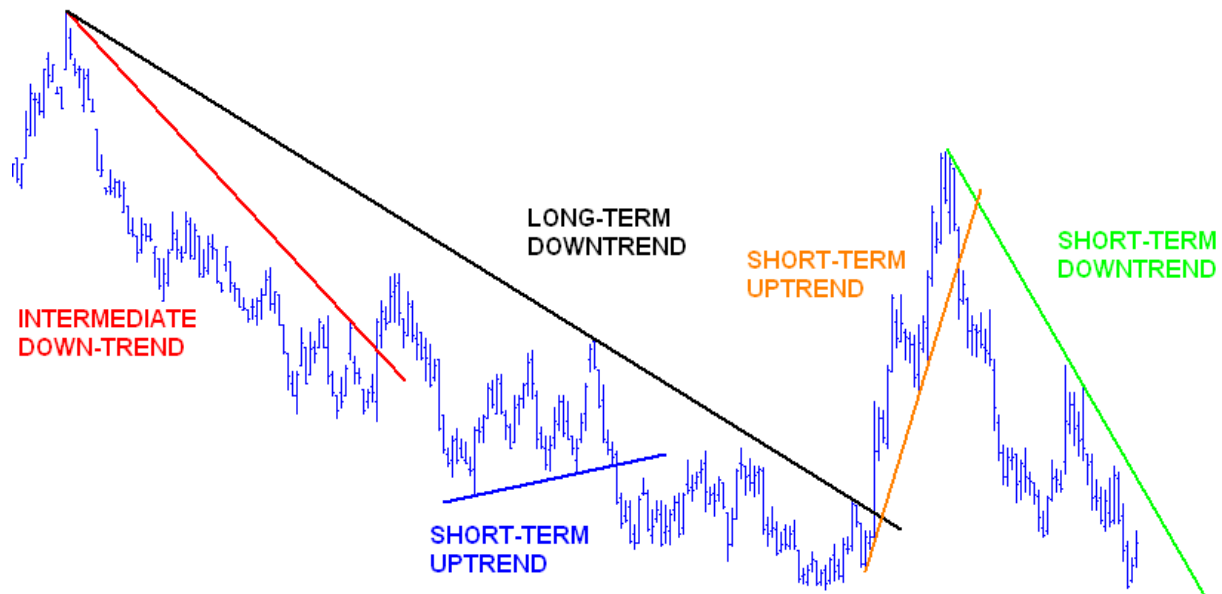


Figure 10. Trend lines of different time frames.

Median Line as a Price Magnet

Now you have an idea of how to select pivots and how to draw the Median Line. Now, what does this tell us about potential price action concerning the Median Line?

Andrews theorized the Median Line acts as a magnet and often draws price towards it. This means that after a P2 forms in a P0 ML P1-P2 Median Line configuration, price will often return to the newly drawn Median Line. At times price will fluctuate around the Median Line.

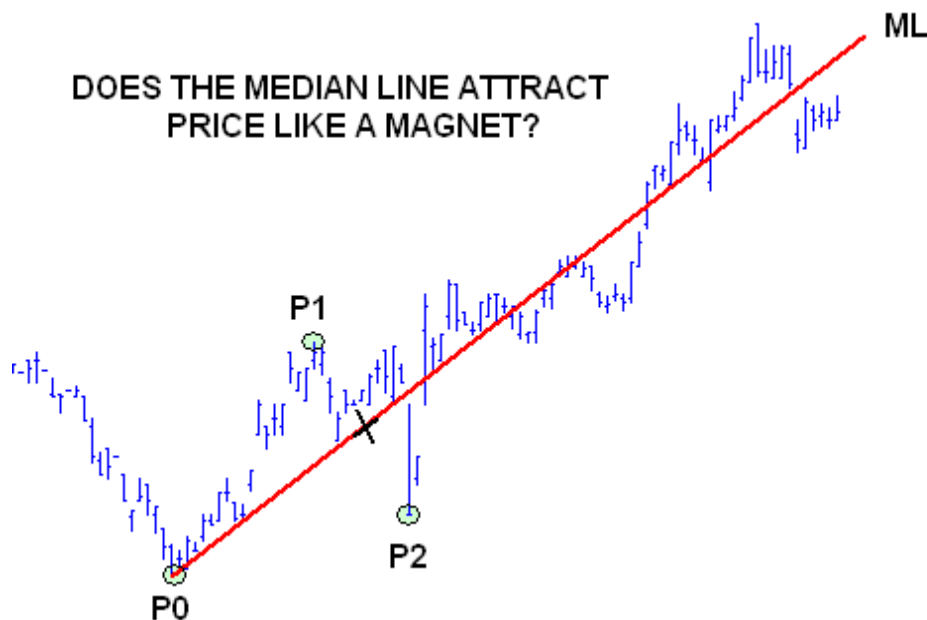


Figure 11. Median Line as a price magnet.

Andrews' Median Line Observations

Andrews observed certain phenomena when prices were near the Median Line. Andrews was clear that these were observations of the tendency of prices – NOT a hard and fast rule that price must abide by.

Andrews' original course states five primary observations concerning the Median Line. This study will be concerned with the first four observations. The first three observations concern the ability of the Median Line to attract prices and will be discussed here.

“There is a high probability that:

- 1. prices will reach the latest ML**
- 2. prices will either reverse on meeting the ML or gap through it**
- 3. when prices pass through the ML, they will pull back to it”**

~ Dr. Alan Andrews, Action-Reaction Course

Andrews estimated the probability of prices returning to the Median Line after forming a P2 in a P0 ML P1-P2 configuration was about 80%. Is this true? Wouldn't that be a powerful thing to know! Under what conditions did Andrews draw the lines?

PART III

Price Action NEAR the Median Line

According to Andrews' definition, price will likely either reverse at the Median Line, or gap through the Median Line and then revisit the Median Line before continuing in the original direction.

A price gap occurs when price does not trade within a specific range during a specified time period, effectively leaving a "space". A price gap often indicates strength (gap up), or weakness (gap down) of the market. Andrews also described a gap occurring:

"...when no price action on today's range is opposite any of yesterday's range. Technically and empirically the price at one extreme of a days range may be opposite the extreme of the next day's range, and still have the properties of a true gap."

~ Dr. Alan Andrews, Action-Reaction Course

Andrews also mentions a price "plunge", or acceleration, as a possible outcome when prices near the Median Line. It is possible he was referring to a price plunge with the last statement in the above quote. For the purposes of the study, we will consider a price "plunge" as similar to a price "gap" because of their similar natures.

A price plunge is a large price move indicated by a long price bar either up or down. Perhaps a better term in place of "plunge" is "acceleration", as "plunge" insinuates a drop rather than a rise in price. A large move where prices open near the low of the bar and close near the top of the bar indicates strength of the market. A large move where prices open near the high of the bar and close near the low indicates weakness of the market.

At times, price simply fluctuates around the Median Line; this is called price "consolidation", and will be another outcome when prices near the Median Line.

To summarize, three outcomes are possible when prices near the Median Line:

- 1. Reversal**
- 2. Gap or Plunge (acceleration)**
- 3. Consolidation**

Andrews' observation also states prices will likely return to the ML after passing through it with a price gap or price plunge. We will define this as a Median Line revisit. A Median Line revisit occurs when prices pass through the Median Line with a gap or plunge and then return to the Median Line before proceeding in the direction previous. In the words of Andrews:

“The Penetration Rule is that whenever prices gap past, or plunge through any ML, there is a high probability that they will quickly return to it temporarily, and then resume the trend they had before they gapped or plunged through.”

~ Dr. Alan Andrews, Action-Reaction Course

The three outcomes are illustrated in the following figures.

Price Reversal NEAR the Median Line

A price reversal occurs when price meets the Median Line (or within a reasonable distance near the Median Line) and reverses direction. A “reasonable distance” must be defined by the user. The important point is to remain consistent throughout the study. Remember the lines are rarely drawn perfectly. A little bit of forgiveness must be considered.

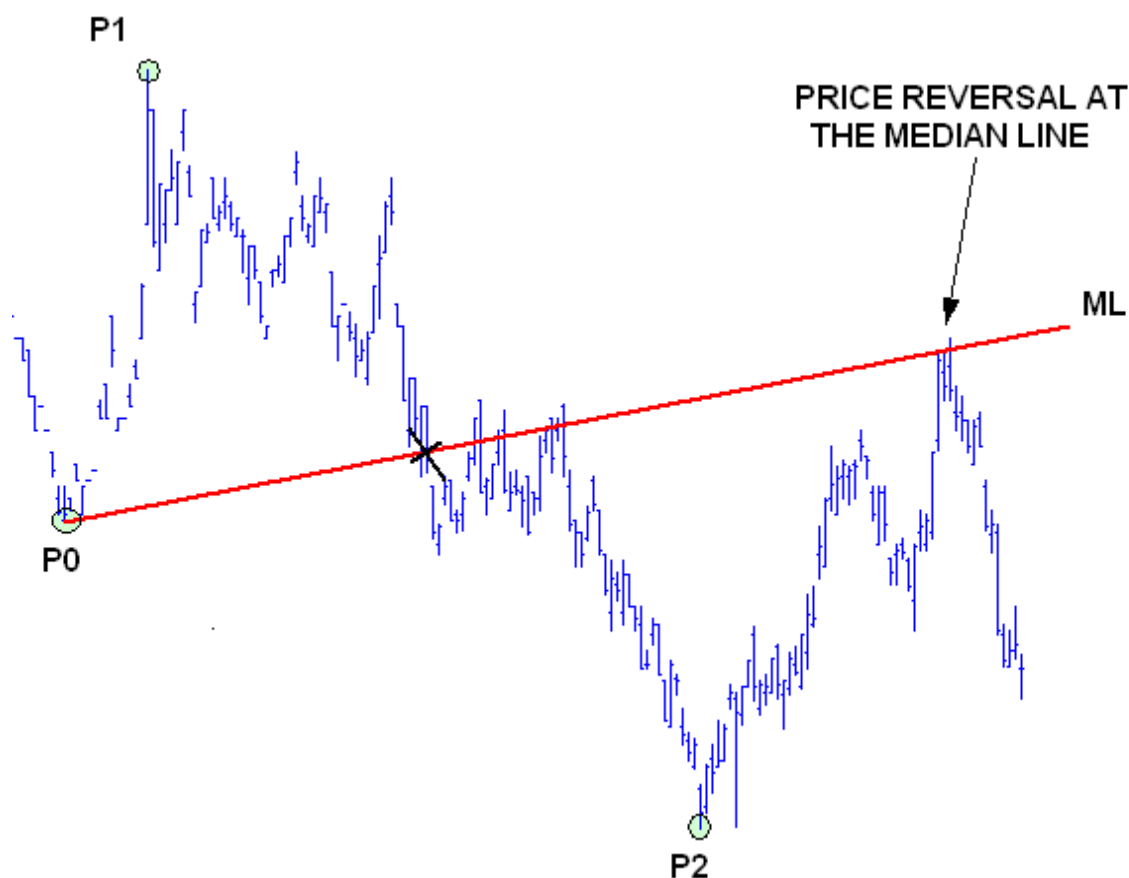


Figure 12. Price reversal at the Median Line.

Price Gap and Revisit NEAR the Median Line

A price gap occurs when price “skips” over the Median Line leaving a space that is not filled within that particular time frame of trading. Notice that price revisits the Median Line by coming back to touch it after the gap and proceeds in the direction prior (up, in this case).

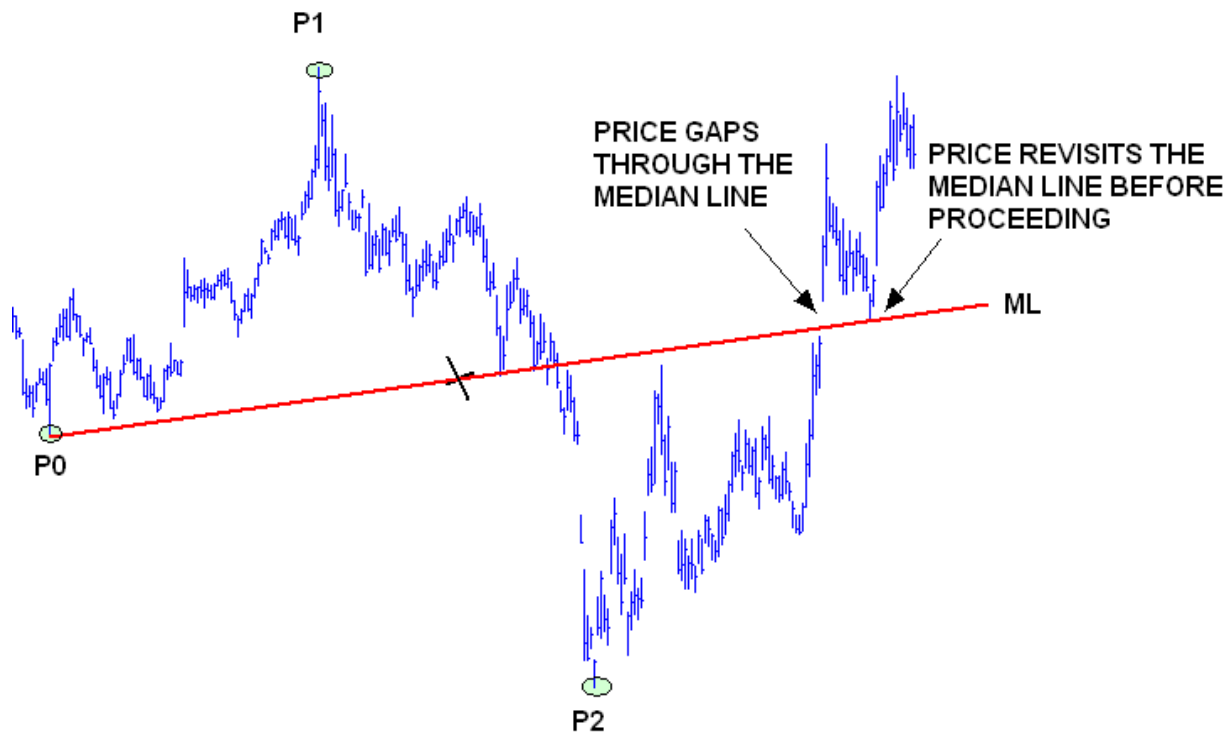


Figure 13. Price gap and revisit.

Price Plunge and Revisit NEAR the Median Line

A price plunge occurs when price passes through the Median Line with a large price move. Notice that price revisits the Median Line by coming back to touch it after the price plunge and proceeds in the direction prior (up, in this case).

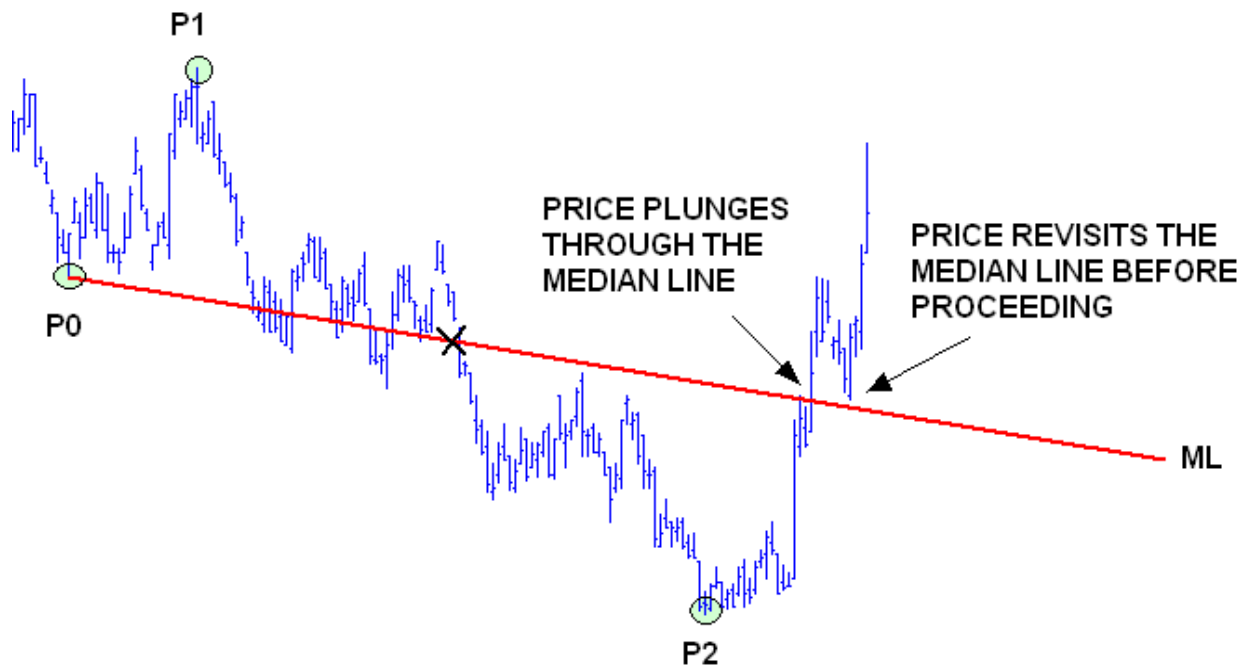


Figure 14. Price plunge and revisit.

Price Consolidation NEAR the Median Line

Price consolidation occurs when price appears to “dance” around the Median Line without clear direction as to if it will reverse, gap, or plunge through. The Median Line is truly acting as a magnet to price.

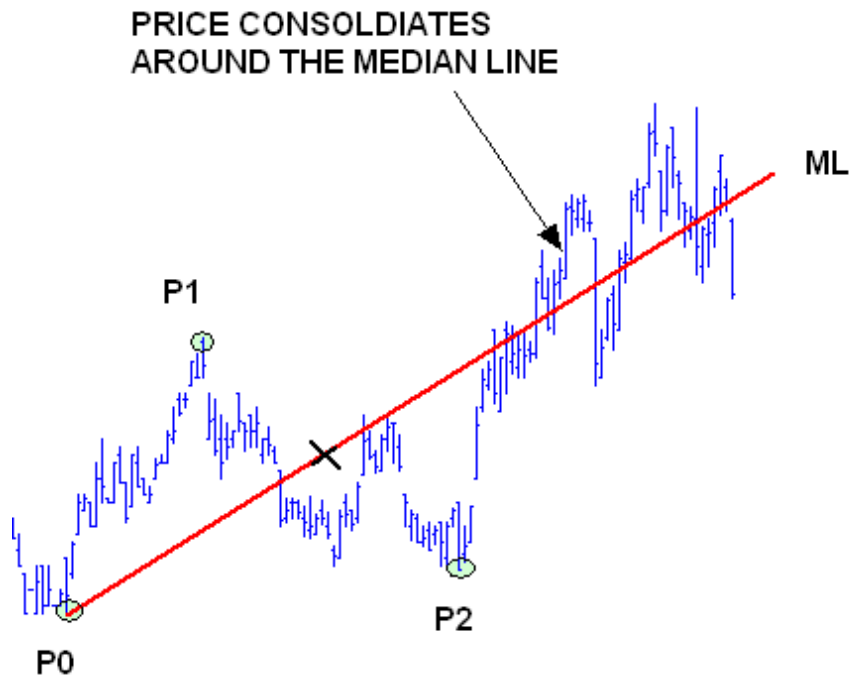


Figure 15. Price consolidation around the Median Line.

PART IV

Price Failures

Andrews estimated price returns to the Median Line more often than not. He also realized that when this did not occur, he needed methods for trading when price did not act as expected. He called these situations “price failures”. Andrews stated in his original course:

“When prices fail to reach the ML as shown by a space between the P of reversal and the ML, the probability is that this price reversal will go further than it did on its approach toward the ML.”

~ Dr. Alan Andrews, *Action-Reaction Course*

The fourth observation Andrews made concerning the Median Line addresses price failures.

“There is a high probability that:

1. prices will reach the latest ML
2. prices will either reverse on meeting the ML or gap through it
3. when prices pass through the ML, they will pull back to it
- 4. when prices reverse before reaching the ML, leaving a “space”, they will move more in the opposite direction than when prices were rising toward the ML”**

~ Dr. Alan Andrews, *Action-Reaction Course*

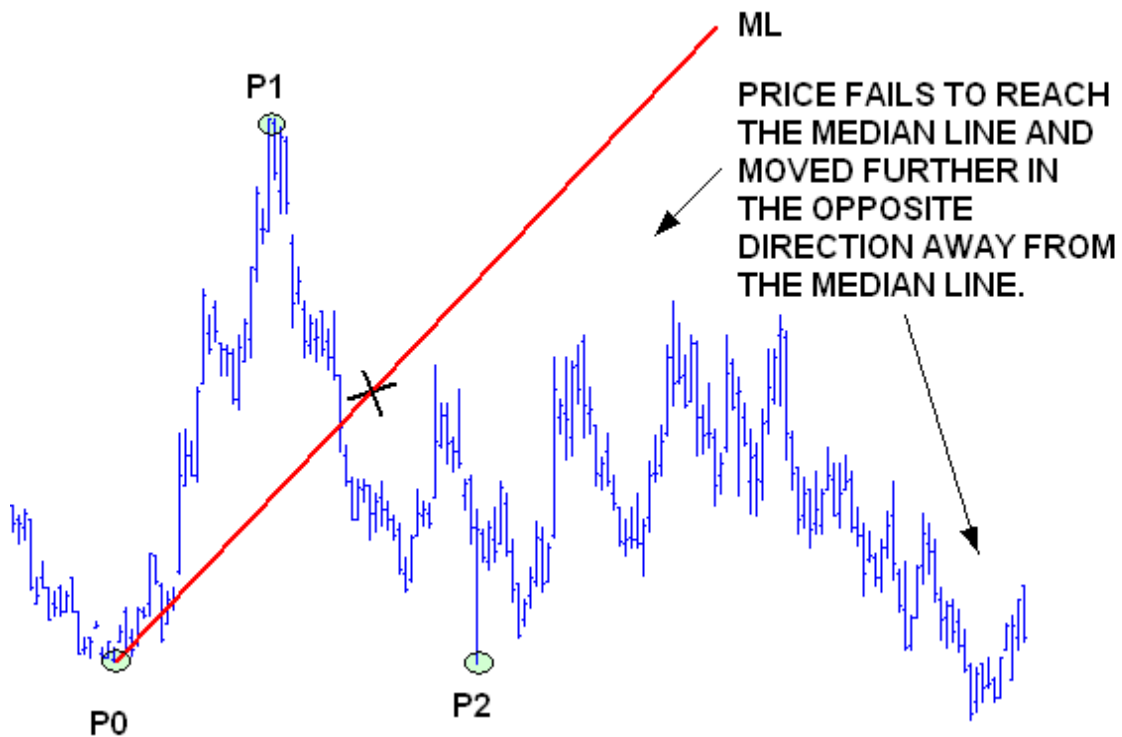


Figure 16. Price failure.

Now you have the basics. The rules and observations have been described. How do we determine if the rules and observations have merit? The study follows.

PART V

The Study

To set the tone for the study, keep the following quote in mind:

“Three Rules of Work:

- 1) Out of clutter – find simplicity.
- 2) From discord – find harmony.
- 3) In the middle of difficulty lies opportunity.”

~ Albert Einstein

The study will involve the basic observations Andrews made when prices were NEAR the Median Line:

- 1) **Prices reach the latest Median Line (drawn from three consecutive, alternative pivots).**
- 2) **Upon meeting the Median Line, prices will reverse, gap/plunge through or consolidate.**
- 3) **Upon gapping or plunging through the Median Line, price will revisit the Median Line before continuing in the prior direction,**
- 4) **If price fails to meet the Median Line, price will move further in the other direction than it did on the approach to the Median Line.**

The process of conducting the study follows the logic illustrated in Figure 17 below:

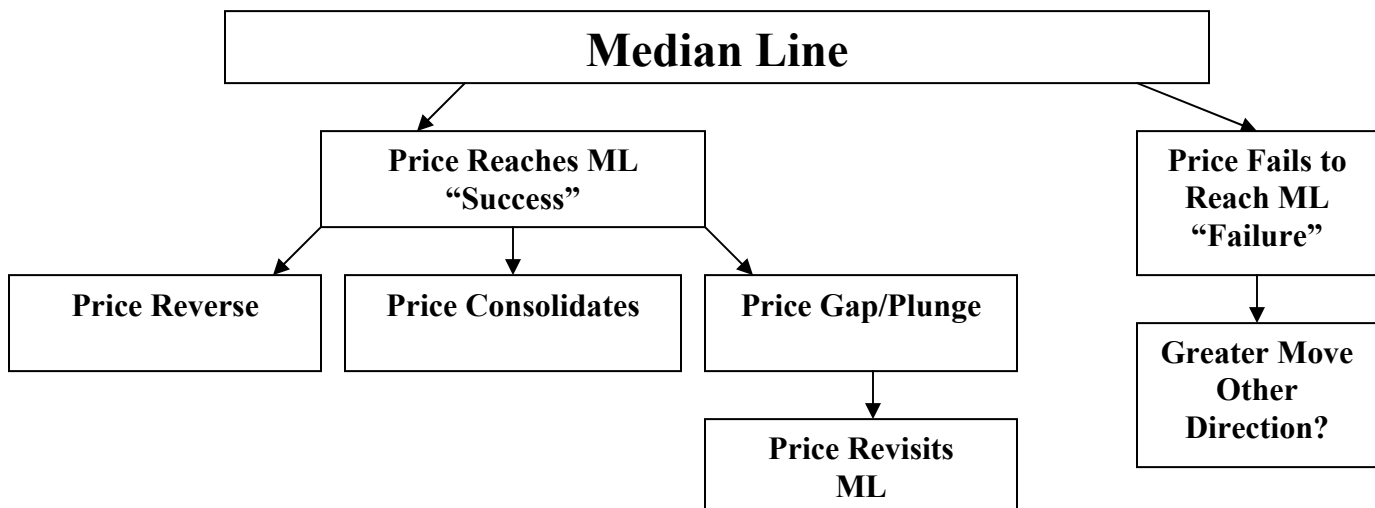


Figure 17. Flowchart of Possibilities.

The results of the study will be recorded in the results sheet shown in Table 1 below:

Market or Stock: _____

Time Frame: _____

	Total #	%
Median Lines		
Median Line successes		of total Median Lines
Reverse		of successes
Gap/Plunge		of successes
Revisit ML		of Gap/Plunge
Consolidate		of successes
Median Line failures		of total Median Lines
Greater move		of failures

Table 1. Results sheet.

Where:

% Median Line successes = (# of ML successes)/(total # of ML) x 100%

% Reverse = (# of reverse)/(# of ML success) x 100%

% Gap/Plunge = (# of gap/plunge)/(# of ML success) x 100%

% Revisit ML = (# of revisit ML)/(# of gap/plunge) x 100%

% Consolidate = (# of consolidate)/(# of success) x 100%

% Median Line failures = (# of ML failures)/(total # of ML) x 100%

% Greater move = (# of greater move)/(# of ML failures) x 100%

The math is intuitive. Basically what we want to know is the percentage of occurrences where prices succeed in reaching the Median Line. And out of those successes, what percentage resulted in a price reversal, price gap/plunge, and price consolidation. We also want to know the percentage of occurrences where prices failed to reach the Median Line and out of those failures, what percentage resulted in greater price moves in the opposite direction away from the Median Line. Examples are given later.

Sample Size

As with any study, the sample size must be determined in order to get reliable results. Obviously, the more charts studied will give a better indication of the overall probabilities. However, not everyone has time to pour over hundreds of charts. Typically studies consist of 40-60 Median Lines drawn and probabilities calculated. Obviously, only drawing a couple Median Lines is not going to give you a very convincing probability. The level of understanding will come with the amount of effort put into it!

For example, I have done studies in the past on the grain markets on daily charts. I chose the new crop contract for each grain and studied fifteen years worth of data (ex. July wheat for years 1990-2005). I did not chart consecutive months because the price patterns would tend to overlap. I found that for each chart (about a years worth of data), an average of six major pivots occurred using short-term trend lines, resulting in about four Median Lines per chart. Not always – some times only three major pivots were observed, sometimes 8 pivots occurred. But, the average number of pivots for a years worth of data for each new crop month was around six for those particular markets.

You may choose to study a group of daily charts for individual stocks. Some stocks will likely cycle enough to reveal about 6 major pivots in one year of daily charts using short-term trend lines. However, some stocks will require two years worth of data to identify around six major pivots because price does not cycle enough and fewer short-term trend lines are present. I have found that charting individual stocks using 2 years worth of data per stock will generally yield about 6 major pivots per chart resulting in about four Median Lines per chart.

You may choose to use monthly, weekly, or intra-day charts as well. Whatever your time frame of study, I would suggest finding charts that have about six major pivots, which result in about four Median Lines per chart.

The more pivots and Median Lines on the chart, the messier things get. If too few pivots are on a chart, it will be difficult to determine anything useful. There are times when only three major pivots will show up on a chart – just enough to draw one Median Line. There must be enough price data on the chart to determine where price is going after the Median Line is drawn. It is a matter of experimentation. The road to discovery is experimentation! Each market has its own “personality”, so the time period of study may need to be adjusted from

market to market or stock to stock. You will soon find a comfortable time frame to study with a little practice.

Conducting the Study

To conduct the study follow the steps outlined below:

STEP 1. Determine the time frame of the chart to be studied (monthly, weekly, daily, or intra-day) and the market or stock to be studied and record in the Results sheets (pg. 51-53).

a. (example - daily wheat charts)

STEP 2. Determine the significant pivots in the time frame under study using the trend line technique. The example will consider short-term trend lines and will be shown individually for clarity.



Figure 18. Identifying P0.

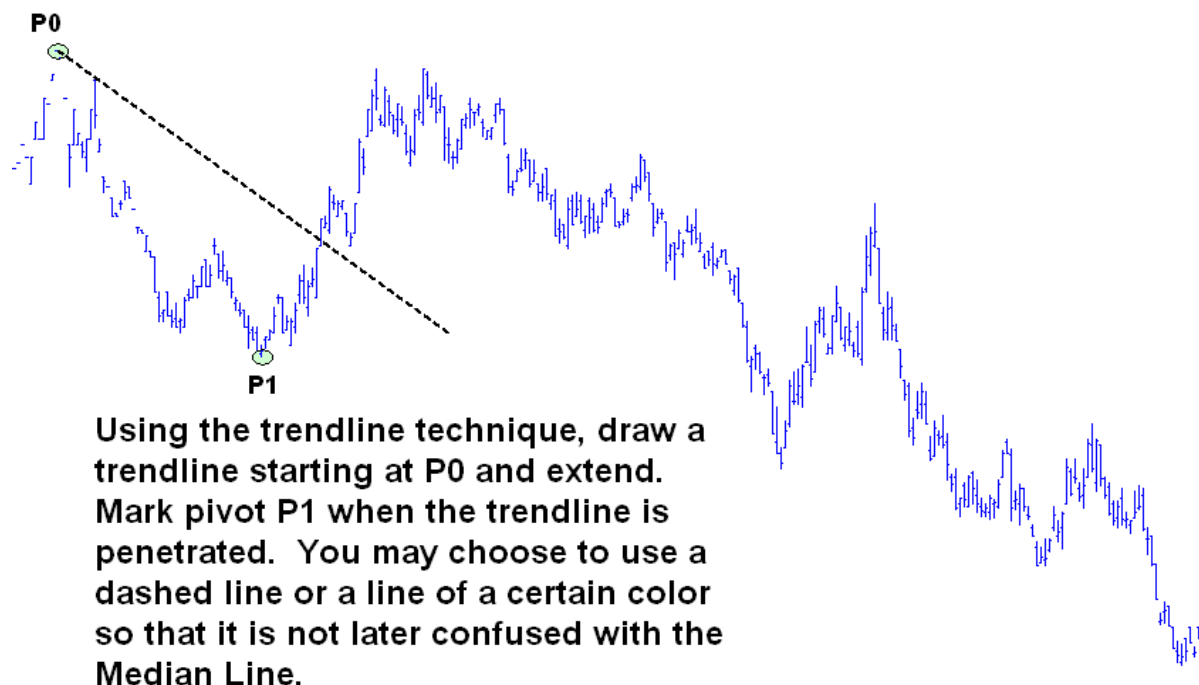


Figure 19. Identifying P1.

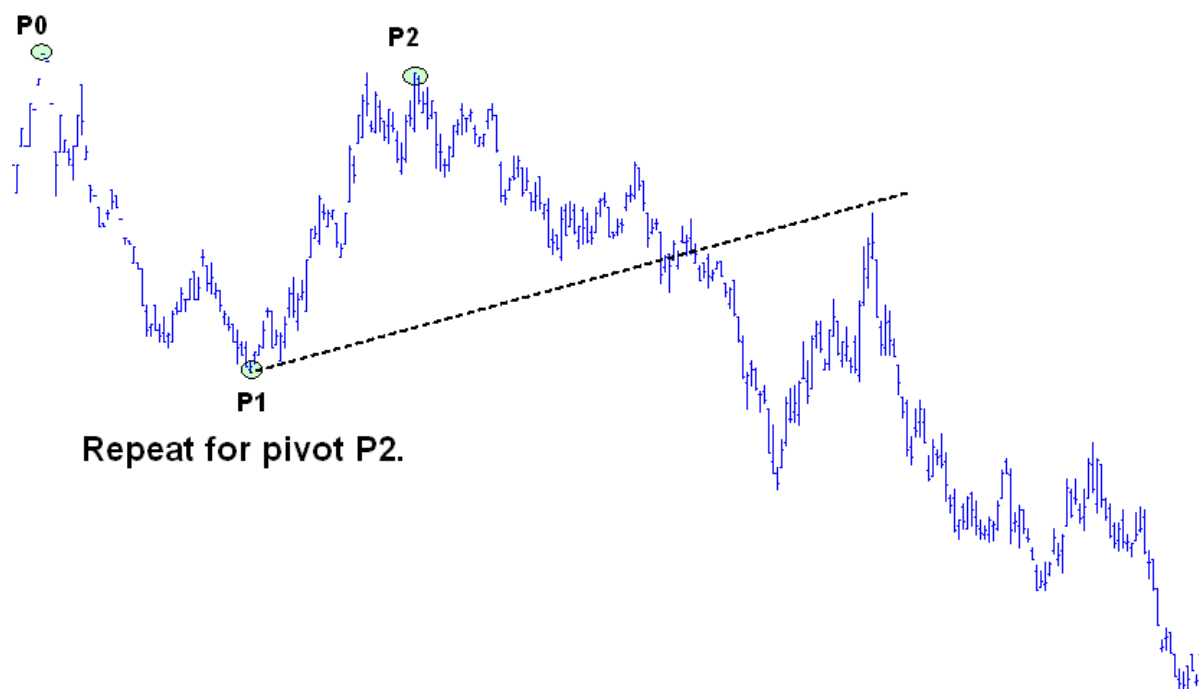


Figure 20. Identifying P2.

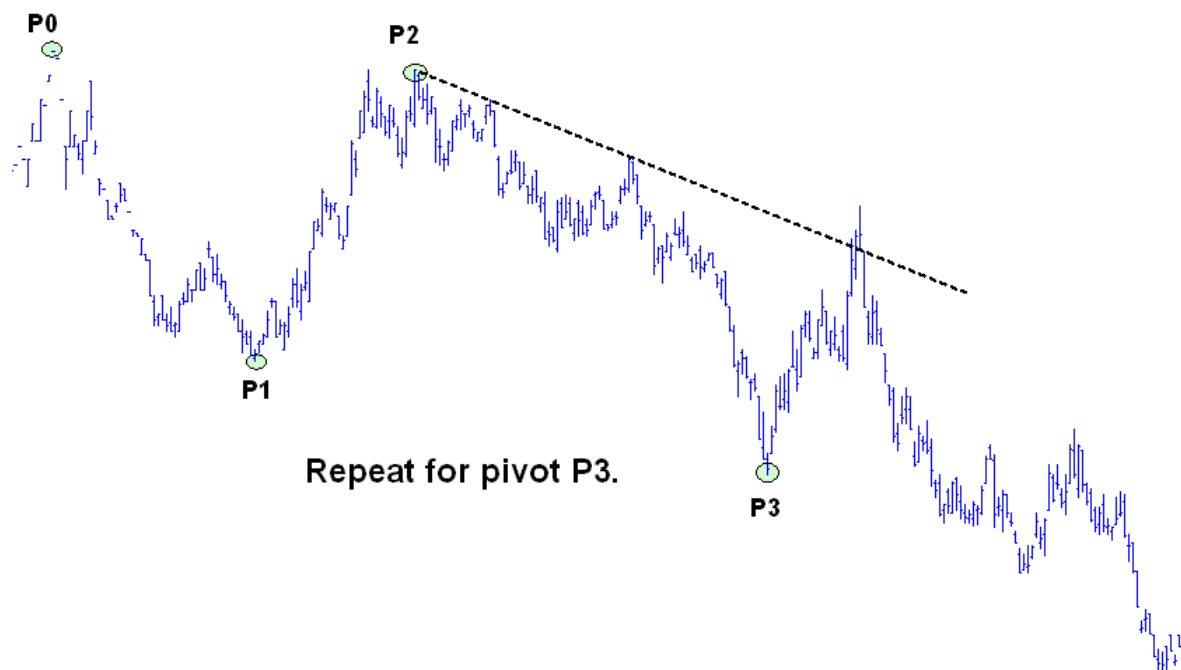


Figure 21. Identifying P3.

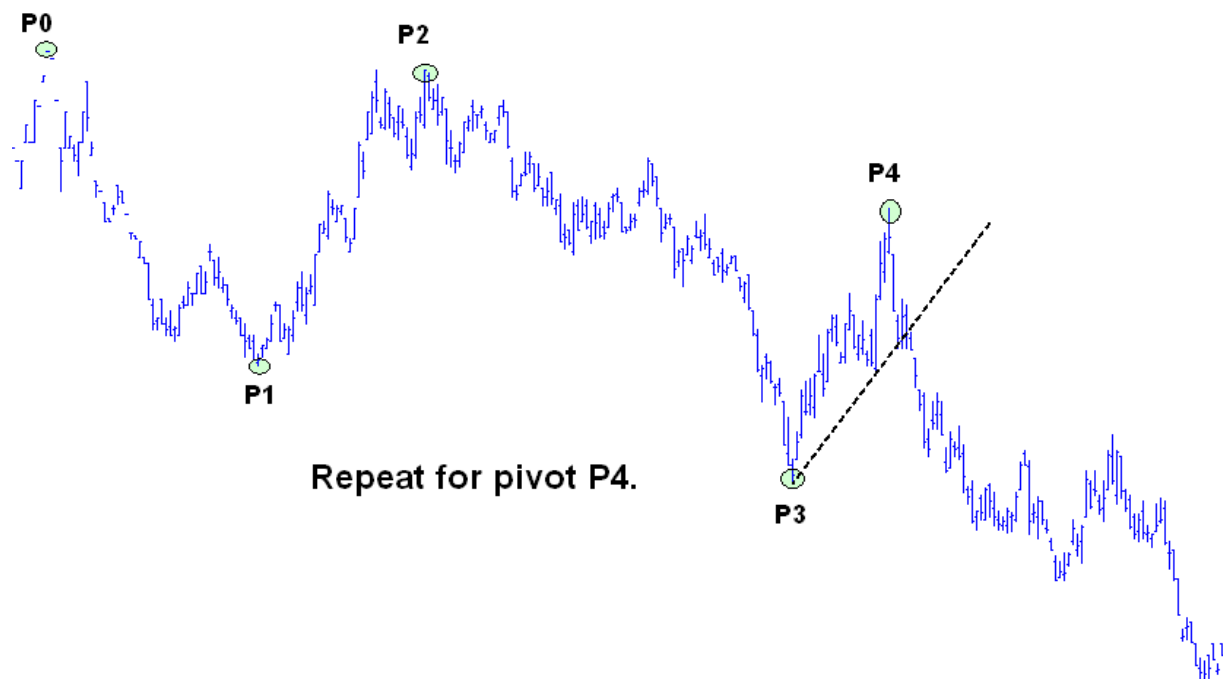


Figure 22. Identifying P4.

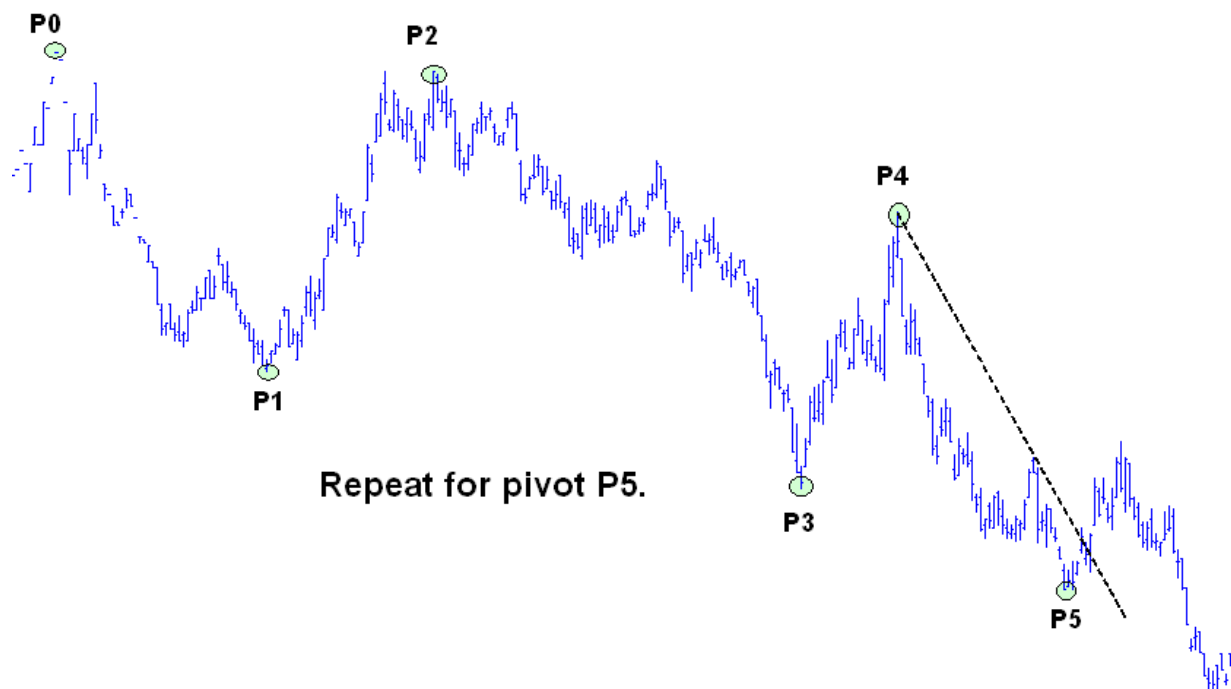


Figure 23. Identifying P5.

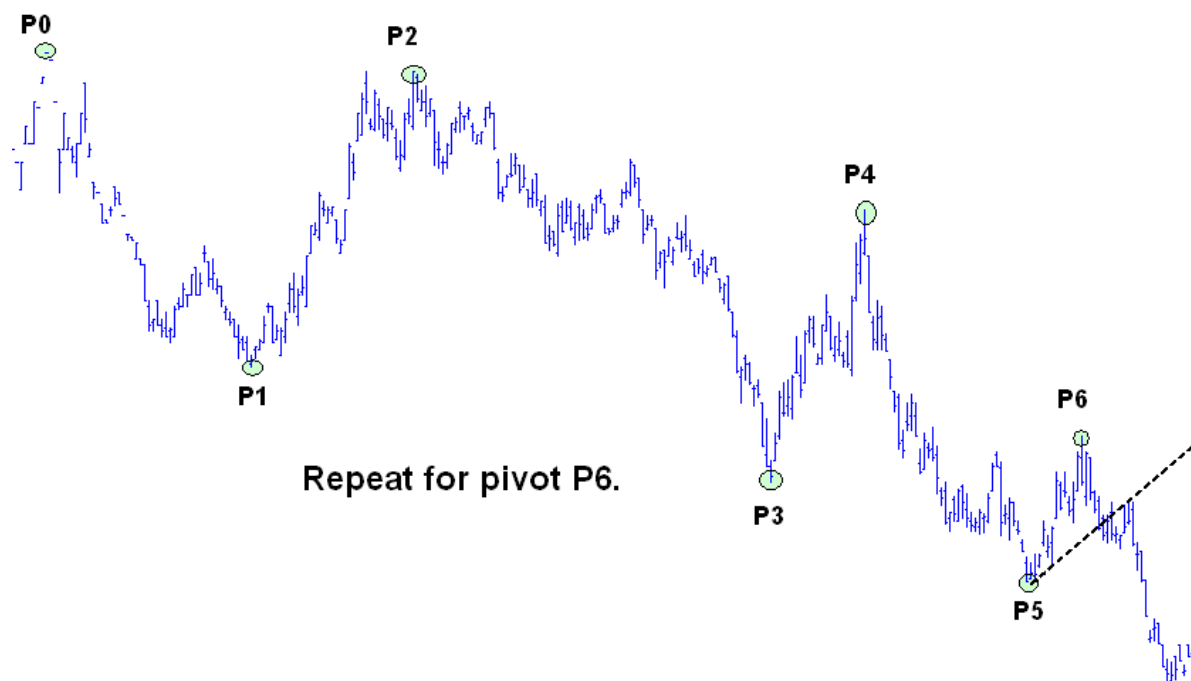


Figure 24. Identifying P6.

STEP 3. Draw the Median Lines as described earlier. Extend the Median Line slightly past the area where the next pivot is labeled. You may wish to use different colors to draw the different Median Lines, or you may wish to label the Median Lines, or perhaps both. It can get confusing otherwise. The Median Lines will be shown individually for clarity.



Figure 25. Drawing P0 ML P1-P2.

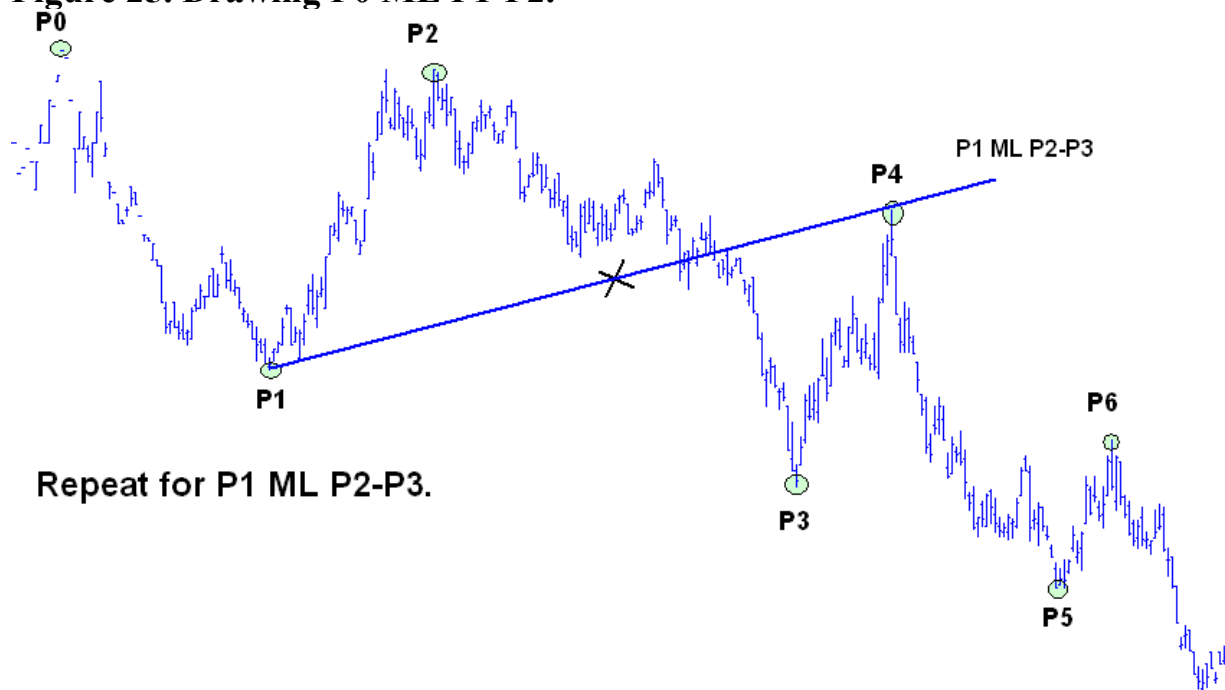


Figure 26. Drawing P1 ML P2-P3.

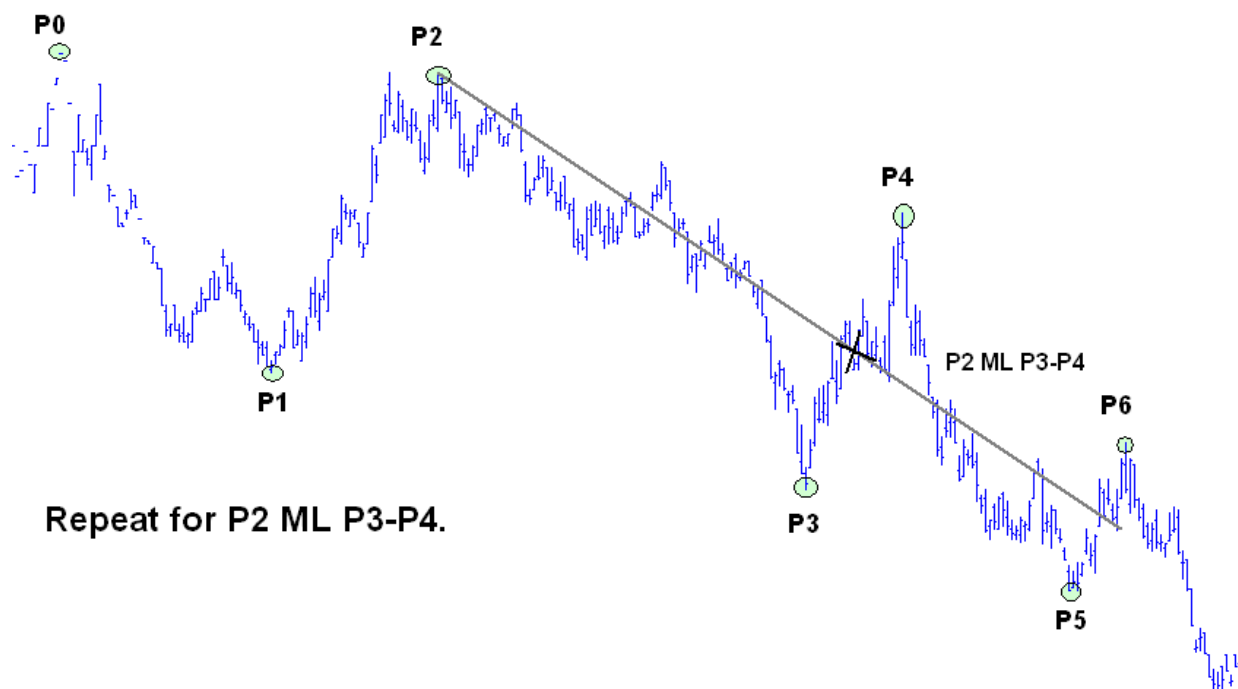


Figure 27. Drawing P2 ML P3-P4.

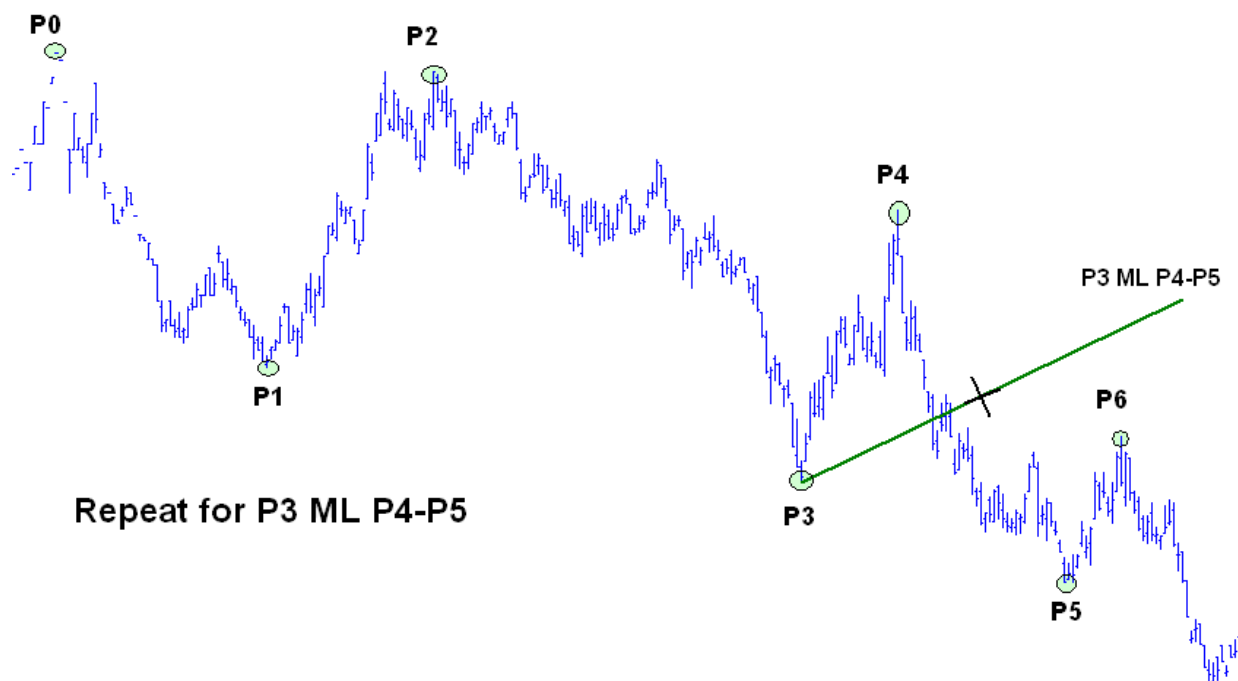


Figure 28. Drawing P3 ML P4-P5.

STEP 4. Determine if prices reach the Median Line or not AT or BEFORE prices reach the next pivot and record the result as a “success” or “failure”. For example, in Figure 29, we can see that prices met the Median Line almost EXACTLY at P3, and is considered a success. Later, you will see an example where prices DO NOT reach the Median Line before the next pivot is formed and will be considered a failure.

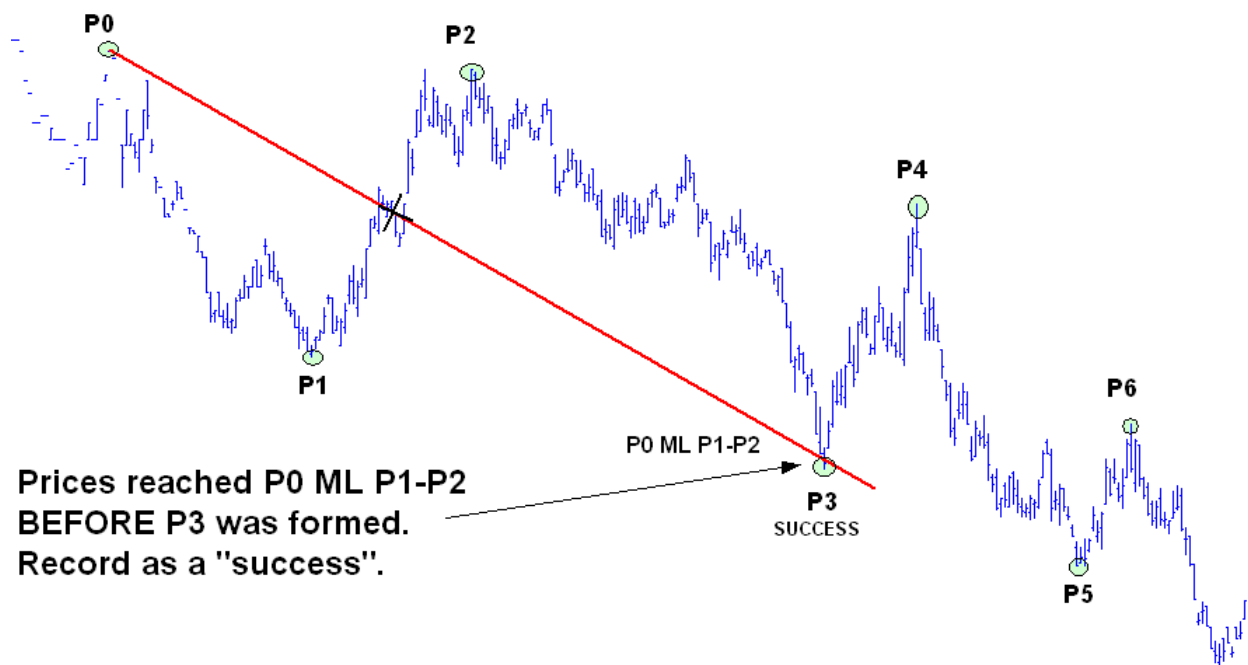


Figure 29. Determining success or failure of P0 ML P1-P2.

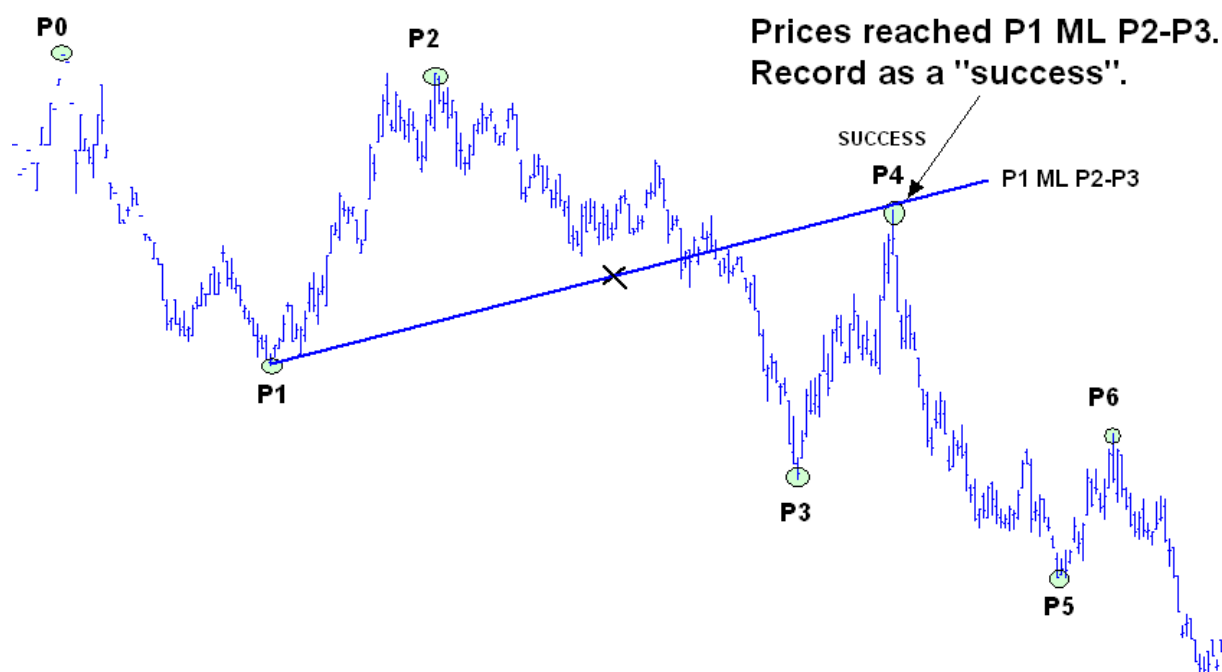


Figure 30. Determining success or failure of P1 ML P2-P3.



Figure 31. Determining success or failure of P2 ML P3-P4.

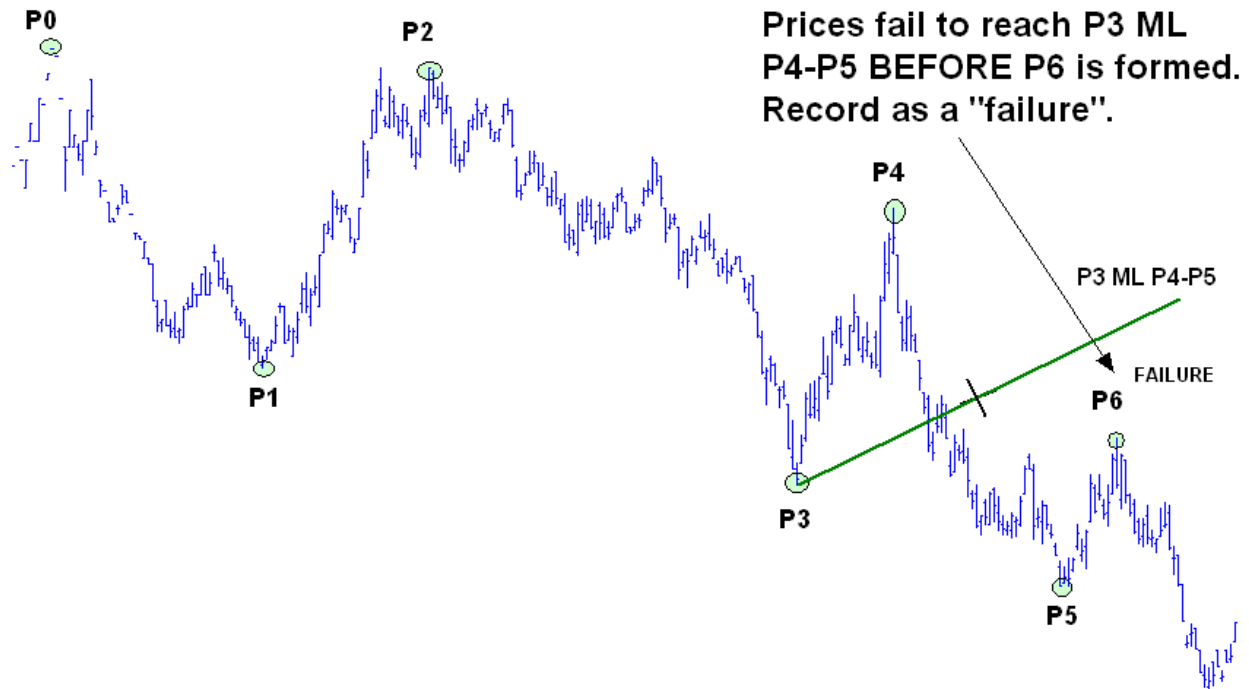


Figure 32. Determining success or failure of P3 ML P4-P5.

STEP 5. In the case of price reaching the Median Line, “Success”:

- a. Determine if prices reverse, gap/plunge through, or consolidate around the Median Line
 - i. Record the result as “Reverse”, “Gap/Plunge”, or “Consolidate”.
 - ii. If prices “Gap/Plunge” through the Median Line and revisit the Median Line before continuing on in the direction previous, record the result as “Revisit”.

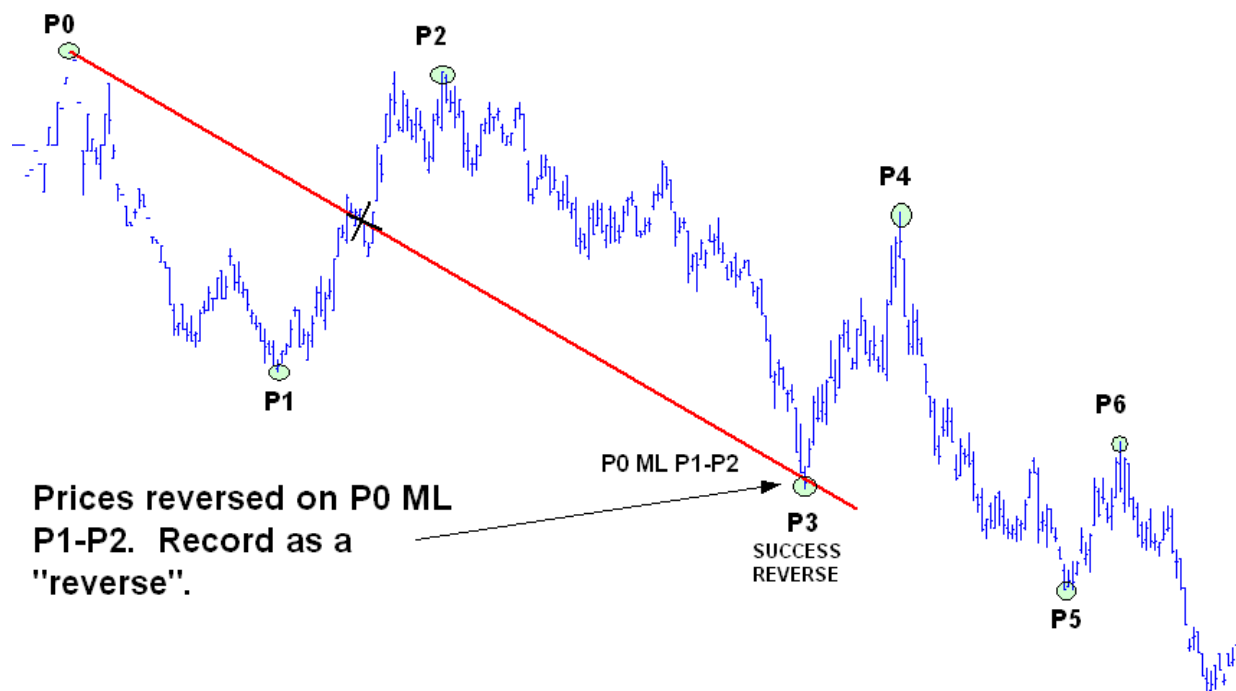


Figure 33. Determining reversal at P0 ML P1-P2.

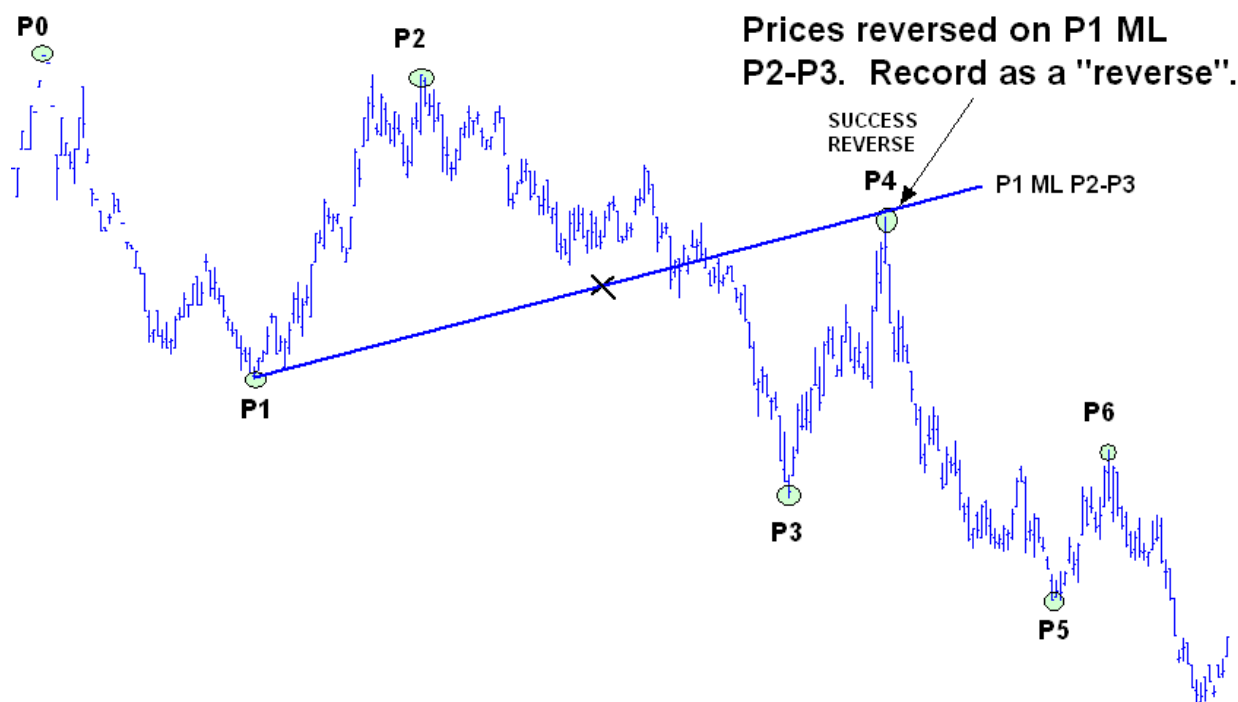


Figure 34. Determining reversal at P1 ML P2-P3.

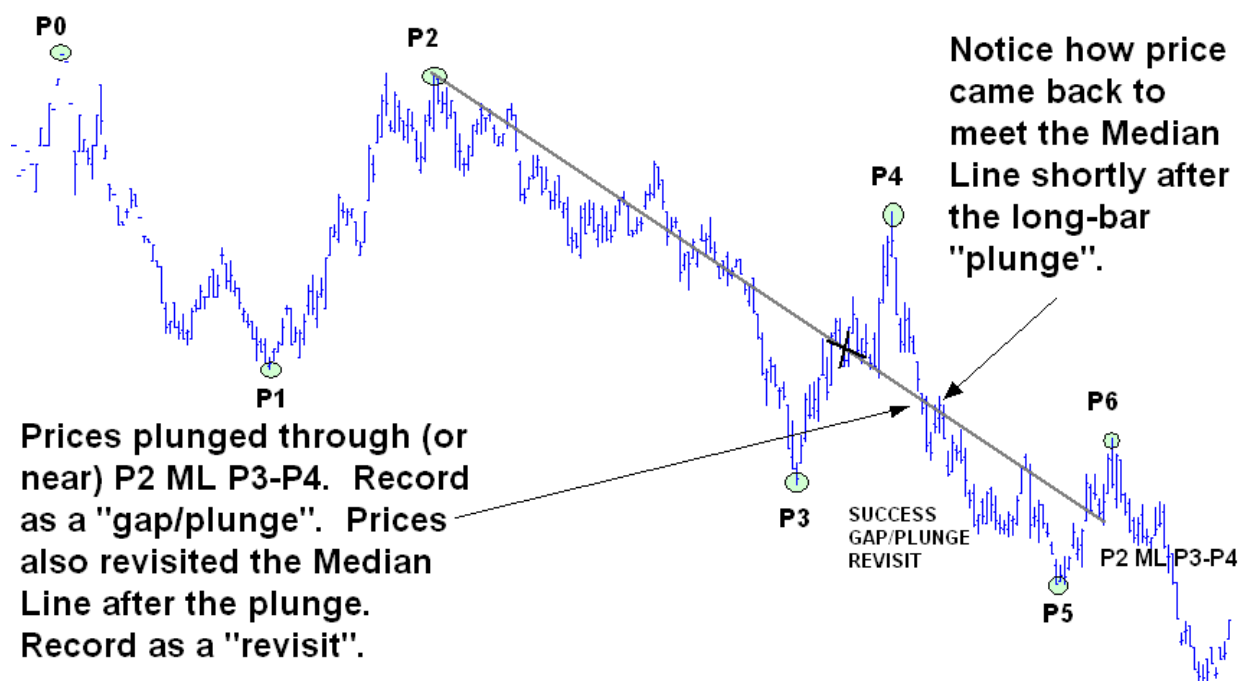


Figure 35. Determining gap/plunge and revisit at P2 ML P3-P4.

STEP 6. In the case of price failing to reach the Median Line “Failure”:

- a. Measure the distance prices moved toward the Median Line before the price failure and then measure the distance price moved in the opposite direction as it did on approach to the Median Line
 - i. If the distance is greater record the result.

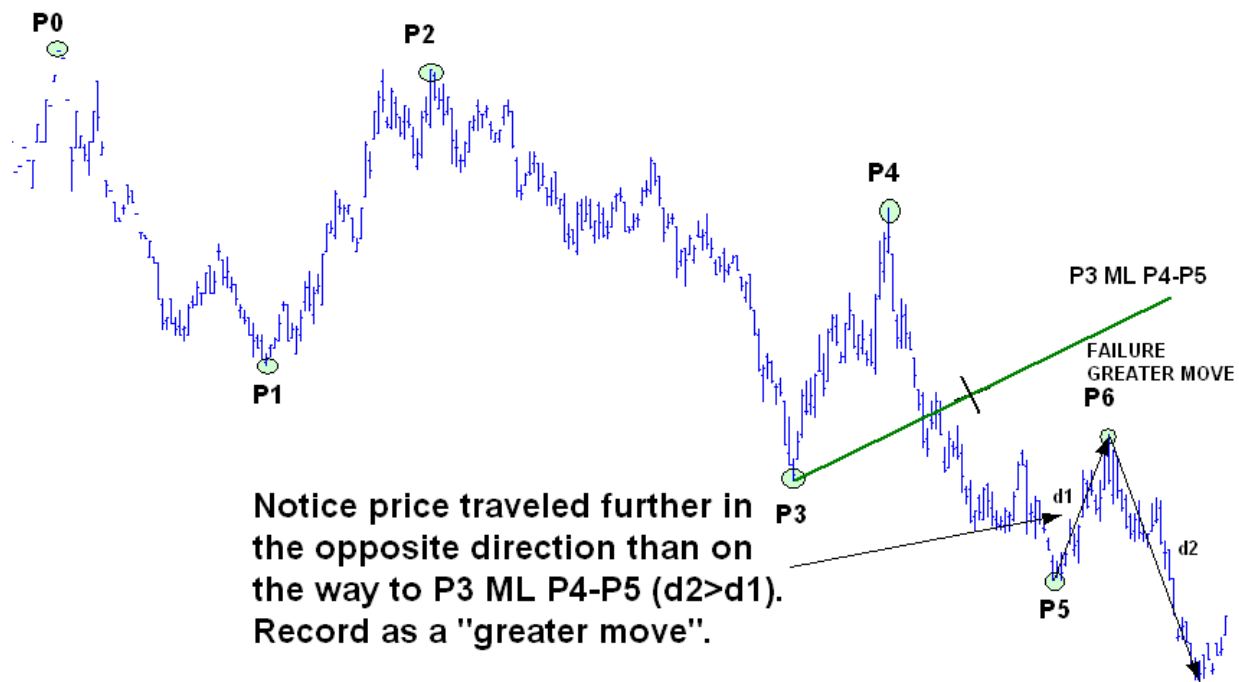


Figure 36. Determining greater move of prices away from P3 ML P4-P5.

The finished chart with trend lines, Median Lines, and notes will get a little messy, but would look like this:

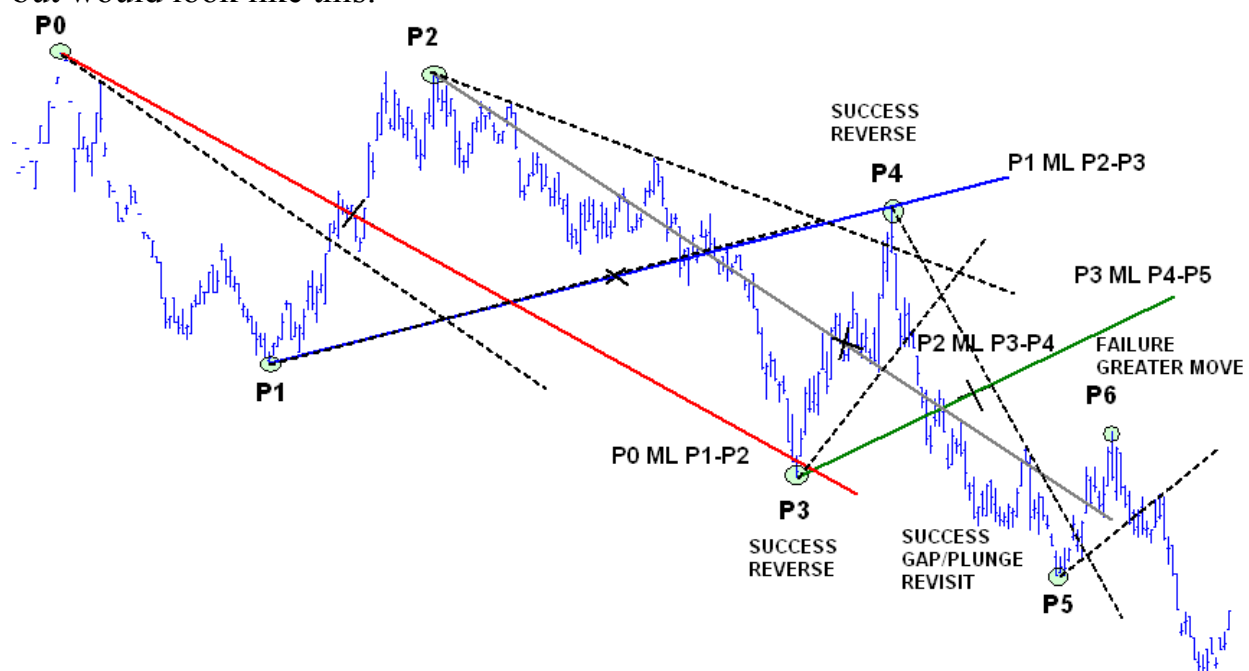


Figure 37. The complete chart under study.

After identifying the successes and their outcomes, reverse, gap/plunge and revisit, and consolidate, and the failures and greater moves, simply accumulate all the results of your study and record in **Part VIII Results** on page 51 and perform the calculations.

For example, the results of this short example study on the chart just completed would look like this:

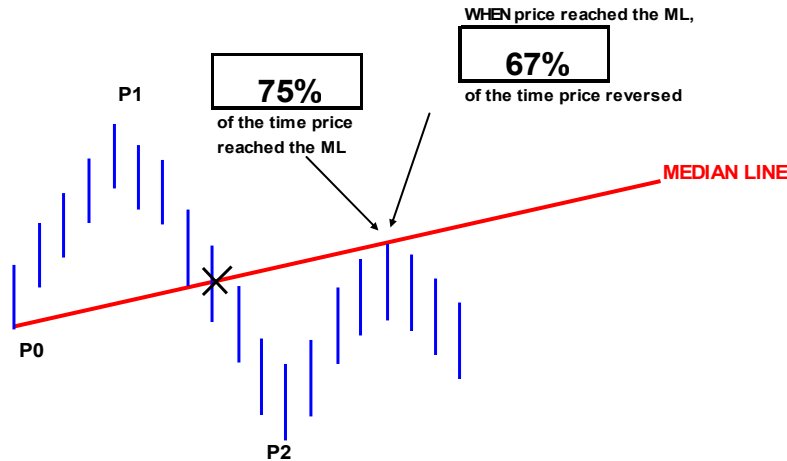
Market or Stock: Wheat
Time Frame: Daily

	Total #	%	
Median Lines	4		
Median Line successes	3	75%	of total Median Lines
Reverse	2	67%	of successes
Gap/Plunge	1	33%	of successes
Revisit ML	1	100%	of Gap/Plunge
Consolidate	0	0%	of successes
Median Line failures	1	25%	of total Median Lines
Greater move	1	100%	of failures

Or, more visually:

Median Line Reversal Probabilities

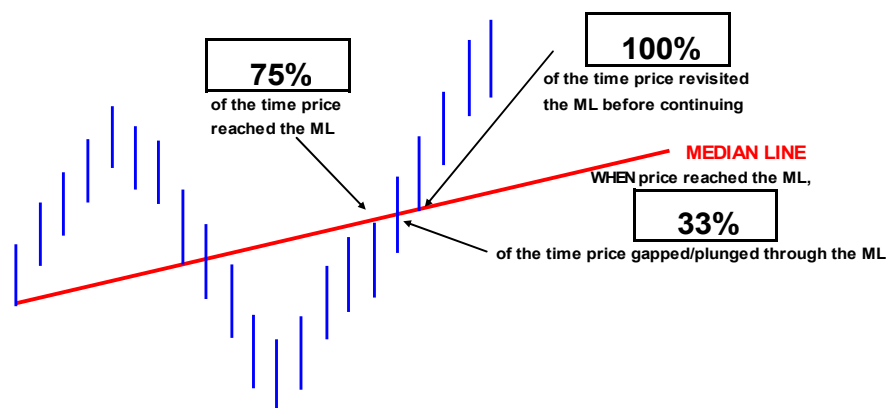
Market or Stock: Wheat
Time Frame: Daily



Now we know based on the conditions we placed on our example study, that when we drew Median Lines from MAJOR pivots on daily wheat charts, price reached the Median Line 75% of the time. WHEN price reached the Median Line, price REVERSED 67% of the time NEAR the Median Line.

Median Line Gap/Plunge Probabilities

Market or Stock: Wheat
Time Frame: Daily

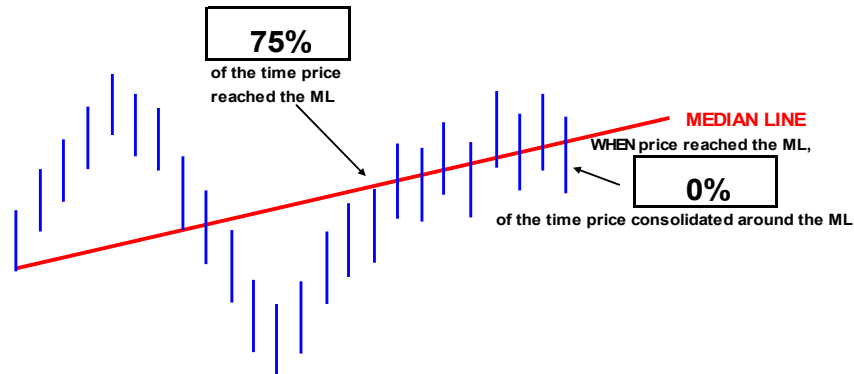


We also know that WHEN price reached the Median Line, price GAPPED or PLUNGED through the Median Line 33% of the time.

Median Line Consolidation Probabilities

Market or Stock: Wheat

Time Frame: Daily

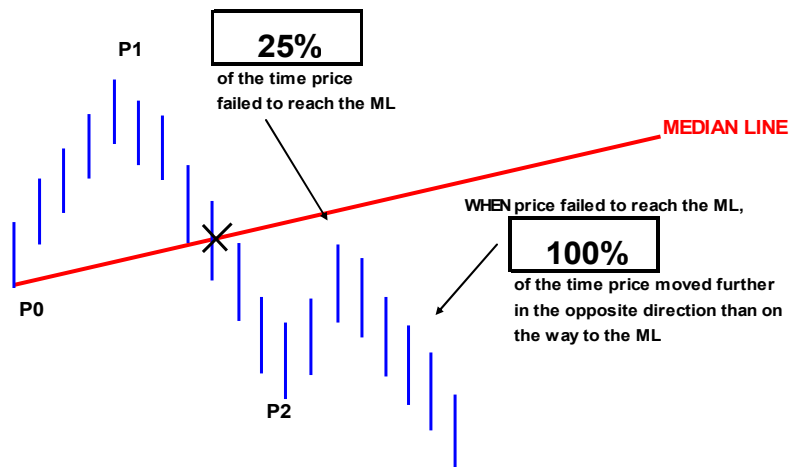


We also know that WHEN price reached the Median Line, price CONSOLIDATED around the Median Line 0% of the time.

Median Line Failure Probabilities

Market or Stock: Wheat

Time Frame: Daily



We also know that price FAILED to reach the Median Line 25% of the time, and WHEN price failed to reach the Median Line, 100% of the time price moved further in the opposite direction.

Obviously, we probably would not put much faith in a study that only consisted of 4 Median Lines. The more Median Lines applied to the conditions under study,

the more reliable of a probability can be attained. The level of your understanding will also coincide with the number of Median Lines studied.

Undoubtedly, in some instances you will question which outcome applies. Is it a gap and revisit or simply consolidation? Is it a plunge through and did price come back to the Median Line close enough to consider it a revisit? The purpose of the examples is not to provide a hard and fast definition to each of the outcomes – but a guideline. You will have to put more specific definitions on the outcomes as you see fit.

One may consider an outcome a plunge through where another would consider the outcome consolidation. We all see and interpret things in our own way. The important point is to define the outcomes as YOU see them and then consistently apply that to the charts.

You will find the study of price charts is as much art as it is science, and therefore imposing strict rules and definitions is not an easy task.

Practice Chart

Try out the method on this chart. Start by drawing trend lines and identifying pivots followed by drawing the Median Lines and finally identifying the outcomes. Possible answers are on the following page.

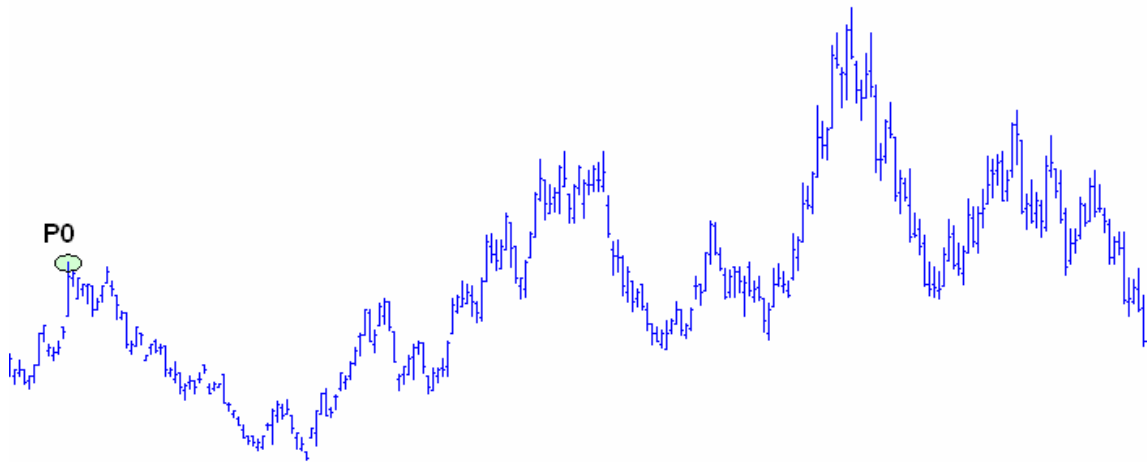


Figure 38. Practice chart.

PART VI

Study Results, Observations, and Conclusions

Study Results

Market or Stock: _____

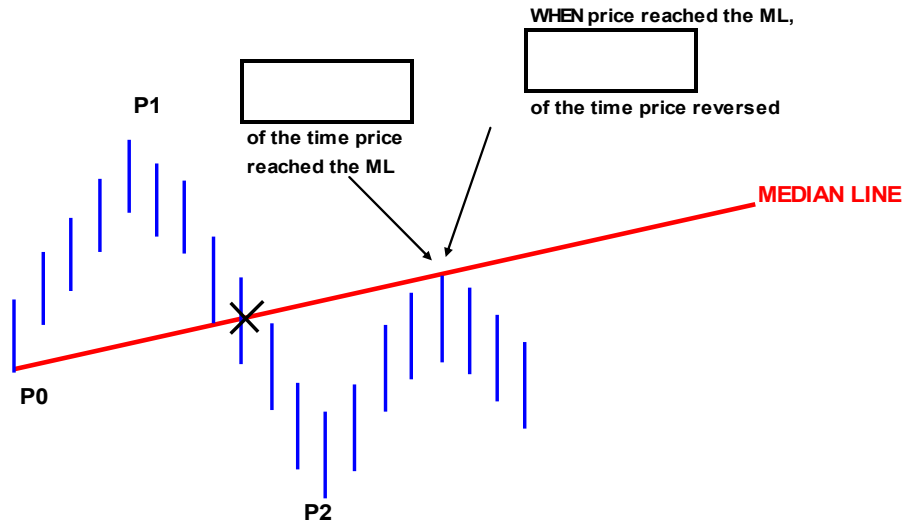
Time Frame: _____

	Total #	%	
Median Lines			
Median Line successes			of total Median Lines
Reverse			of successes
Gap/Plunge			of successes
Revisit ML			of Gap/Plunge
Consolidate			of successes
 Median Line failures			 of total Median Lines
Greater move			of failures

Median Line Reversal Probabilities

Market or Stock: _____

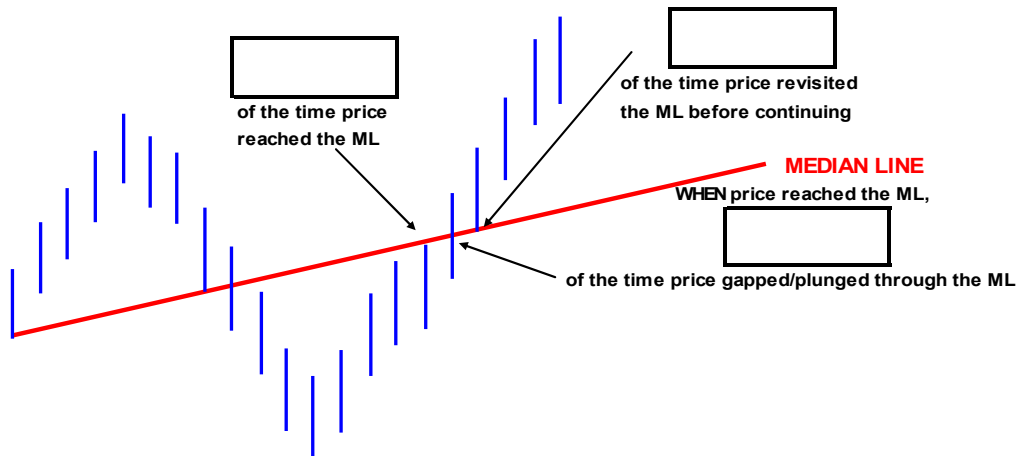
Time Frame: _____



Median Line Gap/Plunge Probabilities

Market or Stock: _____

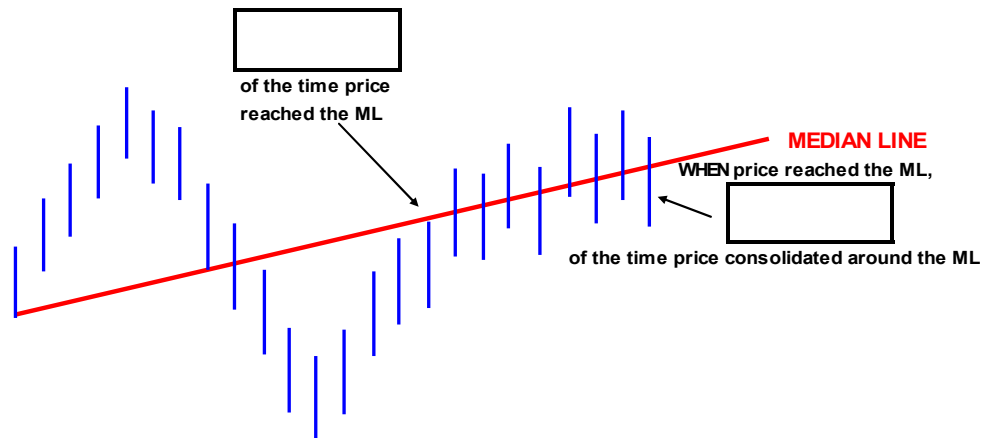
Time Frame: _____



Median Line Consolidation Probabilities

Market or Stock: _____

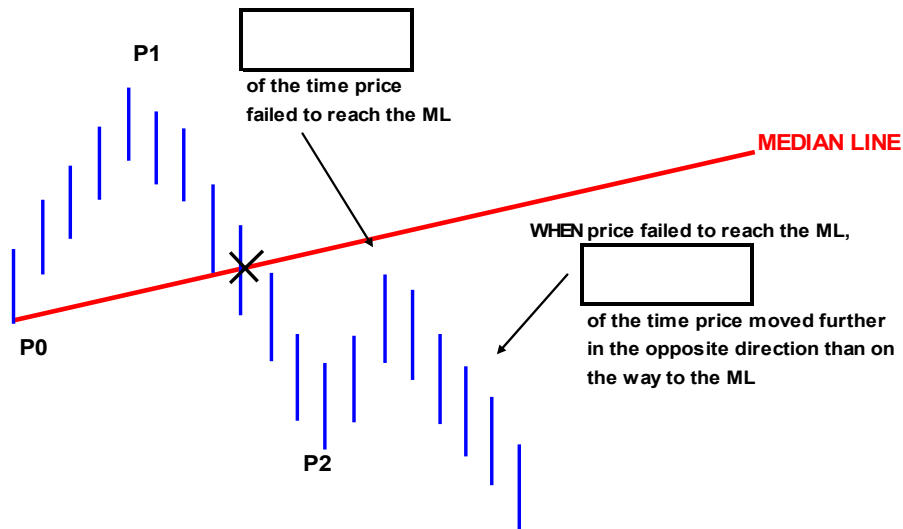
Time Frame: _____



Median Line Failure Probabilities

Market or Stock: _____

Time Frame: _____



The Trend Line Median Line

Andrews observed the Median Line acted as a magnet to prices. You may have observed that in a few of the charts under study, that the Median Line was drawn on top of or NEARLY on top of the original trend line drawn to determine pivots. The trend line essentially BECOMES the Median Line.

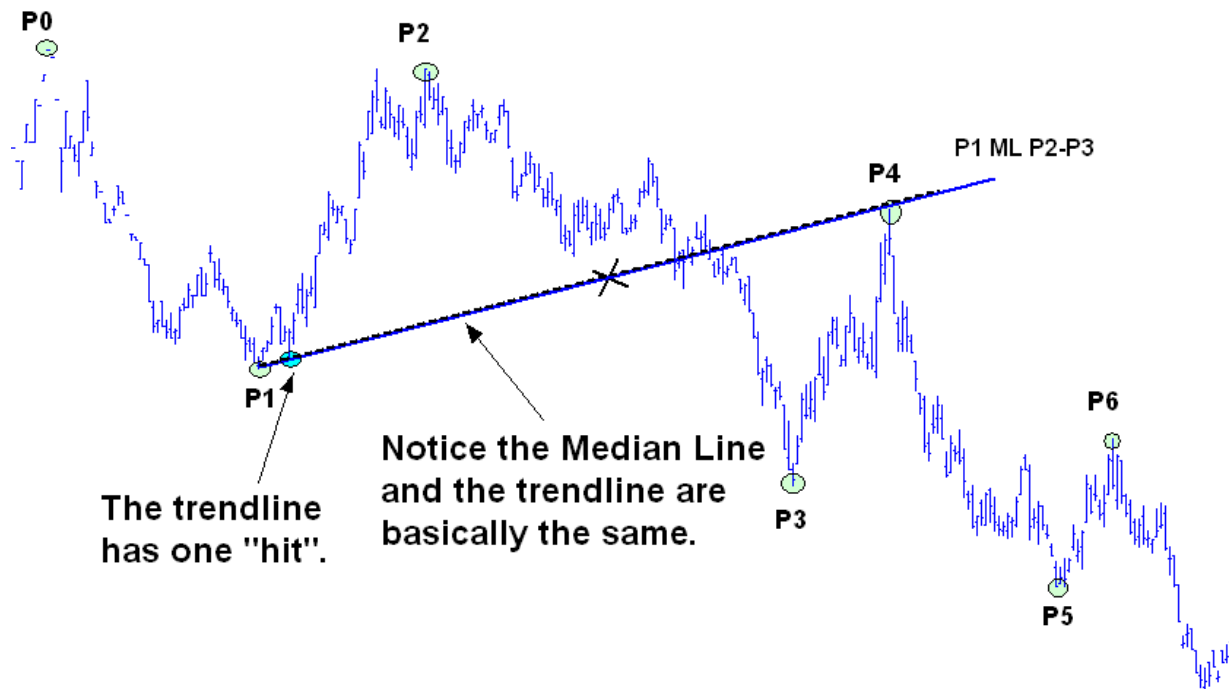


Figure 40. The trend line Median Line.

Does the fact the “magnetic” trend line attracted prices to it BEFORE it became the Median Line contribute to the “magnetic” power of the Median Line once it is established?

Andrews described a trend line that price reacted to often as a “multi pivot” line, and in fact has an example of a multi pivot line (essentially a trend line) that later becomes a Median Line in his original course.

What if multiple hits of the trend line occur before the line BECOMES the Median Line?

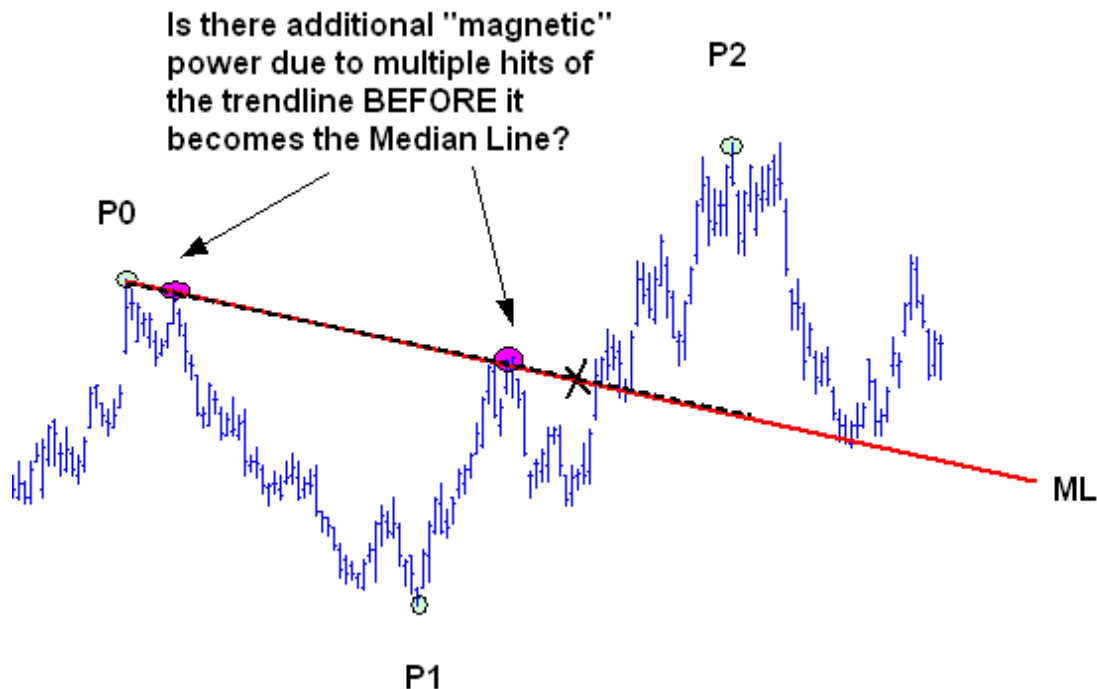


Figure 41. The trend line Median Line with multiple price hits.

Does the trend line Median Line yield improved probabilities? Go back through your charts and find out. Does the probability of price reaching the Median Line increase? Does the probability of price reversing at the Median Line increase?

Conclusions and Observations

As with any study, it is important to draw conclusions and make observations.

Did you find that prices returned to the Median Line about 80% of the time as Andrews suggested? If not, what are the possible reasons why?

Do different markets behave differently? Do different time frames have an affect on the results?

Could it be possible Andrews' statement applied to the way he "saw" price charts and chose pivots from which to draw the Median Lines?

Andrews states in his course,

"ML's between P2 and P3 can start from nearby or remote P1's."

~ Dr. Alan Andrews, Action-Reaction Course

How important is the selection of pivots? You now know the probabilities associated with the particular markets or stocks and the time frame of study that you chose using MAJOR pivots when looking at past price action. You have a starting point.

What else is there to aid in finding high probability lines? And, what about validating the correct pivots in real time? The simple study looked only at past price action where the pivots were fairly obvious.

Time to add the parallel lines.

PART VII

Adding the Parallel Lines

Median Line Parallels

The Median Line parallels (abbreviated MLH) are lines that are parallel to the Median Line drawn from the P1 and P2 pivots. Adding the Median Line parallels finishes out the Median Line set. Andrews defined the Median Line parallels as having similar characteristics as the Median Line itself,

“Median line, & MLH means median line parallel. Used to signal change in trend when price touches or pass past these lines, under specified conditions.”

“These are abbreviated with Capital letter H since that letter has two parallel vertical bars.”

“The other reversal rule is that prices tend to reverse at or near any ML, as well as at any extension of each ML. And also at any MLH or extensions of MLH.”

~ Dr. Alan Andrews, Action-Reaction Course

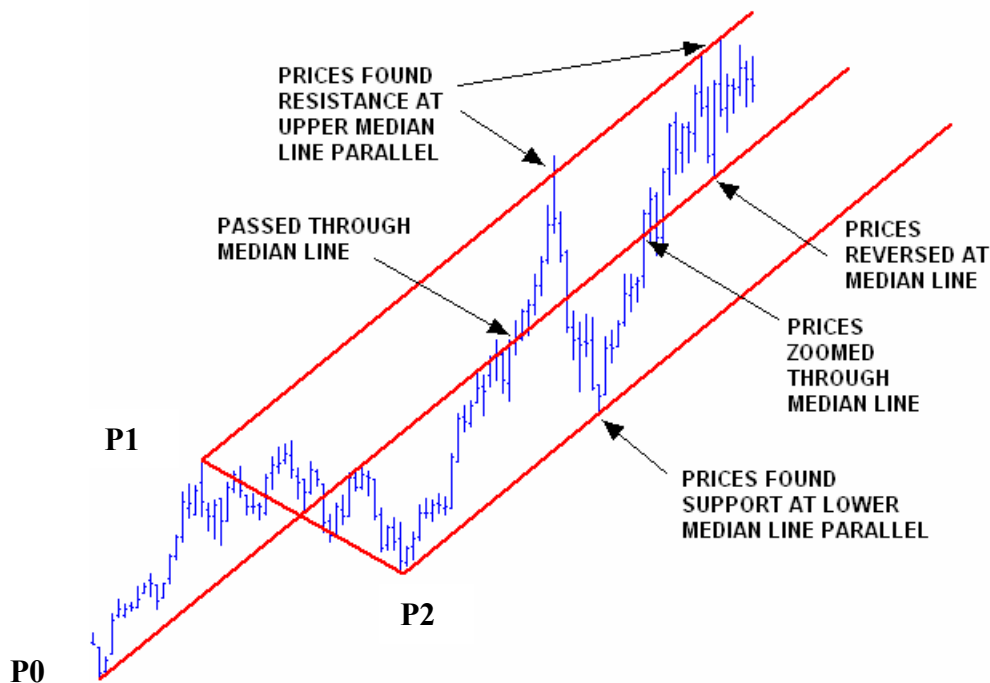


Figure 42. Finished Median Line set with parallels.

The lower Median Line parallel often acts as support in an up sloping Median Line set. The upper Median Line parallel often acts as resistance in a down sloping Median Line set.

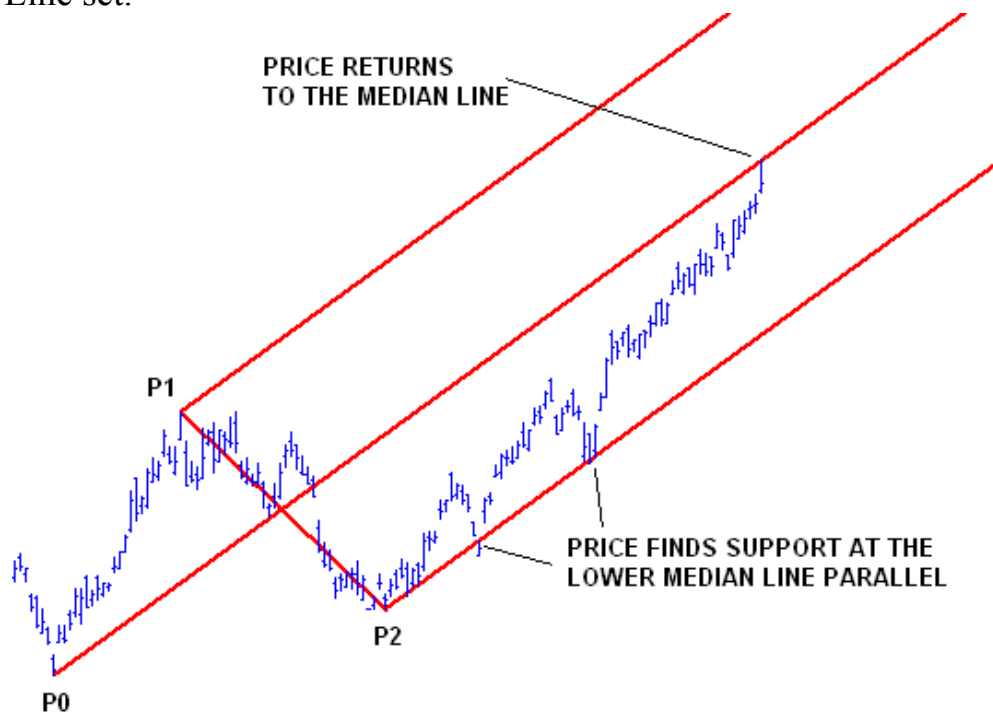


Figure 43. Example of price finding support at the lower MLH.

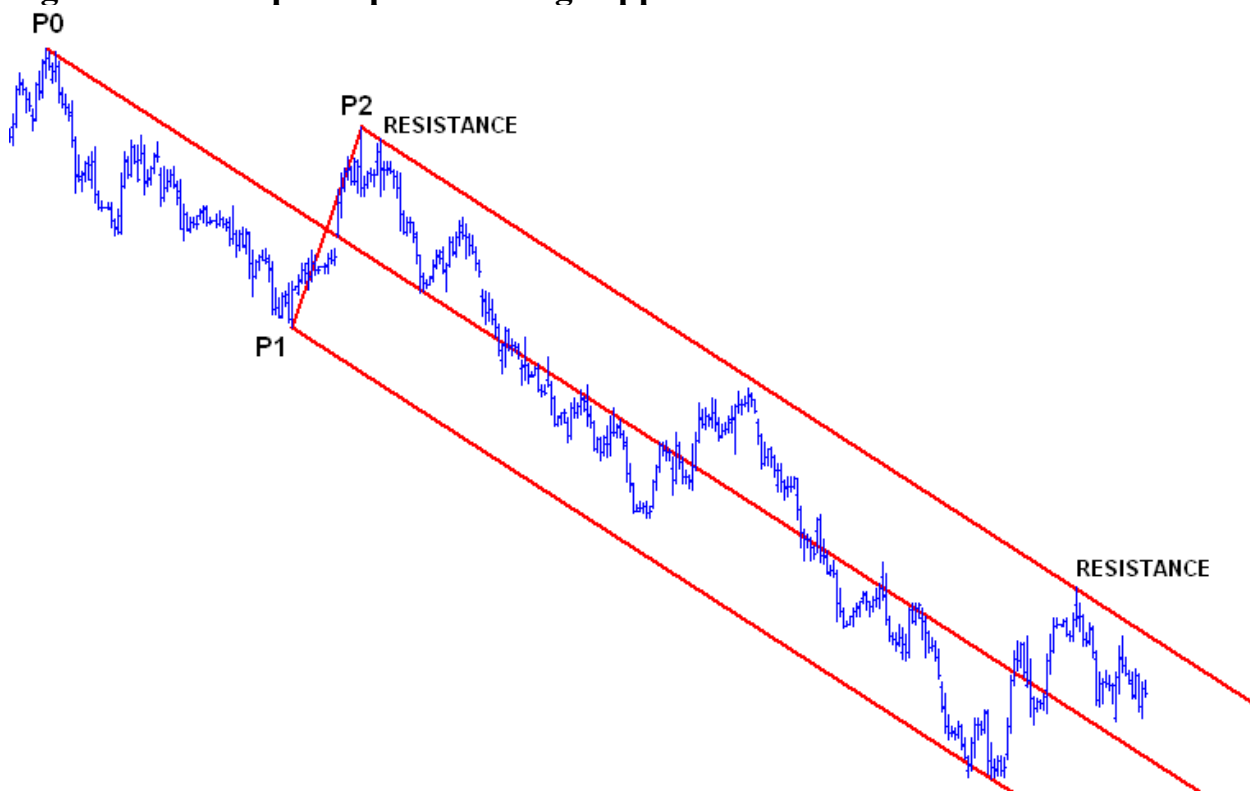


Figure 44. Example of price finding resistance at the upper MLH.

Sliding Parallels

A sliding parallel, labeled SH by Andrews, is a line that is parallel to the Median Line and its parallels. Sliding parallels can be drawn outside of the Median Line set, or inside of the Median Line set. Sliding parallels often compensate for the “shift in frequency” that price sometimes illustrates when oscillating within or slightly outside a Median Line set.

Often the best way to draw sliding parallels is to simply draw a line on top of the Median Line or one of its parallels and then move it into position.

The most common sliding parallel drawn is when price briefly violates the lower Median Line parallel in an up sloping Median Line set, or an upper Median Line parallel in a down sloping Median Line set. A sliding parallel can be drawn to compensate for this “abnormality” or “shift in frequency”.

The expectation of drawing a sliding parallel, would be that it would act as resistance if it were down sloping and support if it were up sloping. Essentially, price was expected to find support/resistance at the Median Line parallel, however, it did not and the sliding parallel makes the adjustment to the shift in frequency.

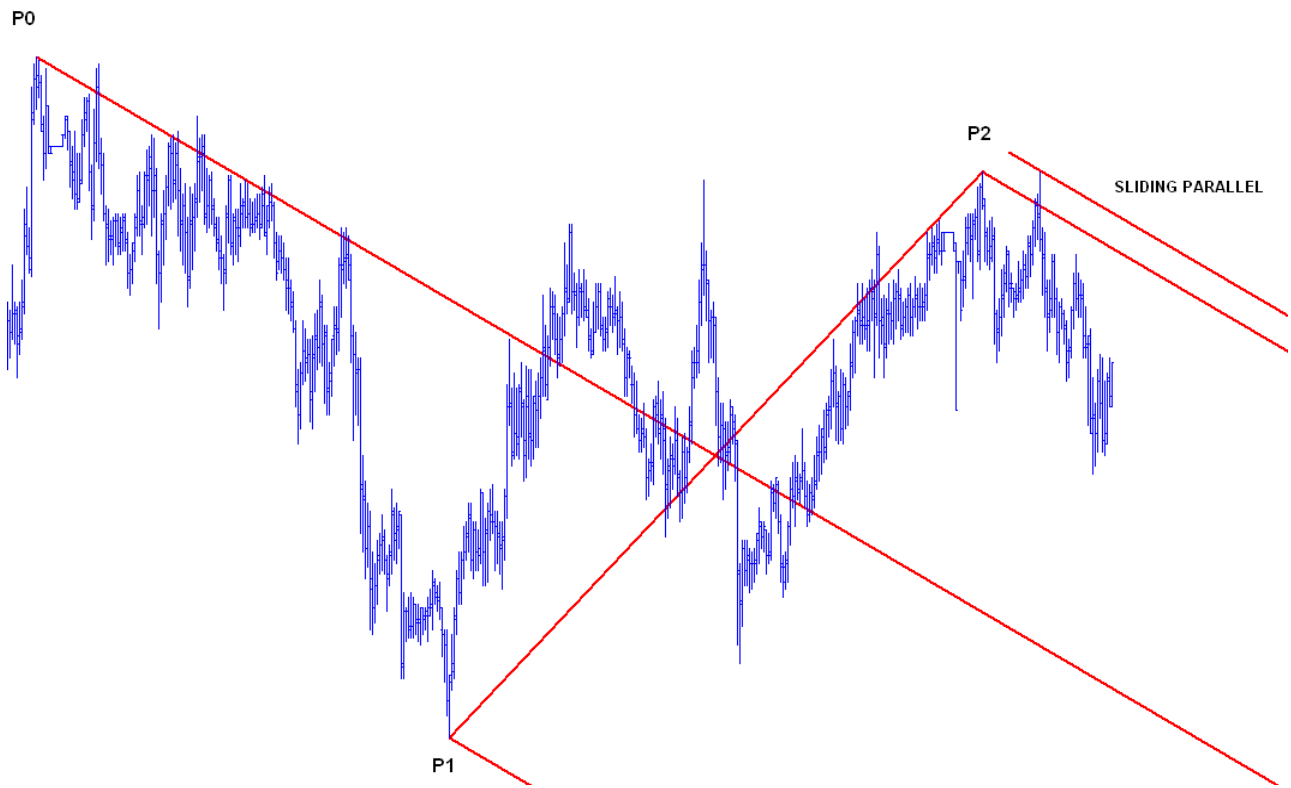


Figure 45. Sliding parallel drawn above the upper Median Line parallel.

Another sliding parallel can be drawn and offset the same distance away from the Median Line as first sliding parallel is drawn from the Median Line parallel. The second line is where price would be expected to find support/resistance.

For example in the illustration below, after the sliding parallel was drawn ABOVE the upper Median Line parallel, distance A to compensate for the shift above the upper Median Line parallel, a sliding parallel would also be drawn ABOVE the Median Line, distance B, where distance A = distance B. Since price shifted above the Median Line set, distance A, the expectation would be that price would fall short of the Median Line the same distance.

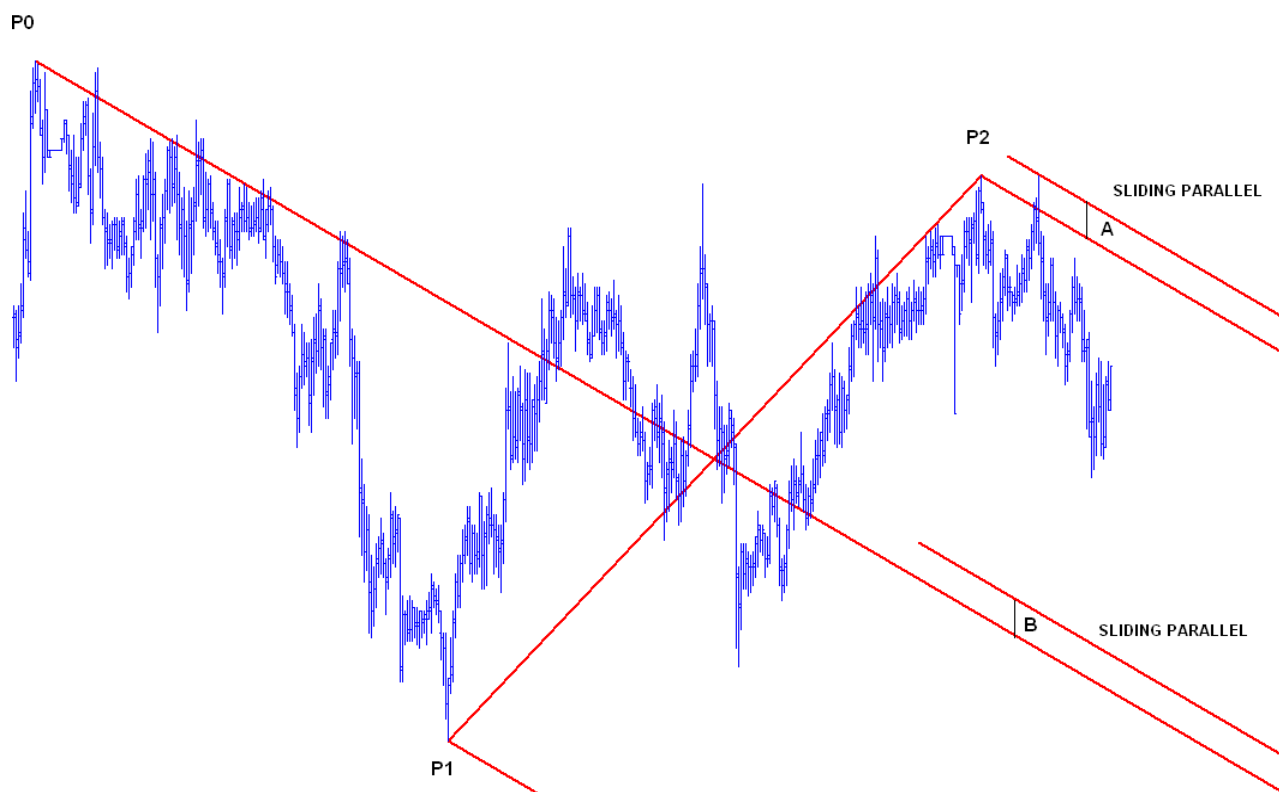


Figure 46. Sliding parallel above Median Line is the target.

Often the slope of the Median Line will set the proper path of price, but price does not cycle in between the Median Line and its parallels – the cycle has shifted. Inside sliding parallels can be useful in these cases to define the upper and lower boundaries. Inside sliding parallels are both drawn INSIDE the Median Line set.

For example, in the figure below, price had progressed from P2 to the Median Line as the theory suggests, then dipped briefly below the Median Line. After briefly rallying above the Median Line, price returned to the Median Line and fell beneath it once again.

After price made another low, a sliding parallel could have been drawn in, distance A, BELOW the Median Line. The sliding parallel proved to be strong support as it had rejected price twice. An upper sliding parallel could then be drawn, distance B, BELOW the upper Median Line parallel. Distance A = distance B. Price would be expected to find resistance at the upper sliding parallel.

Essentially, price has shifted its frequency DOWN within the Median Line set.

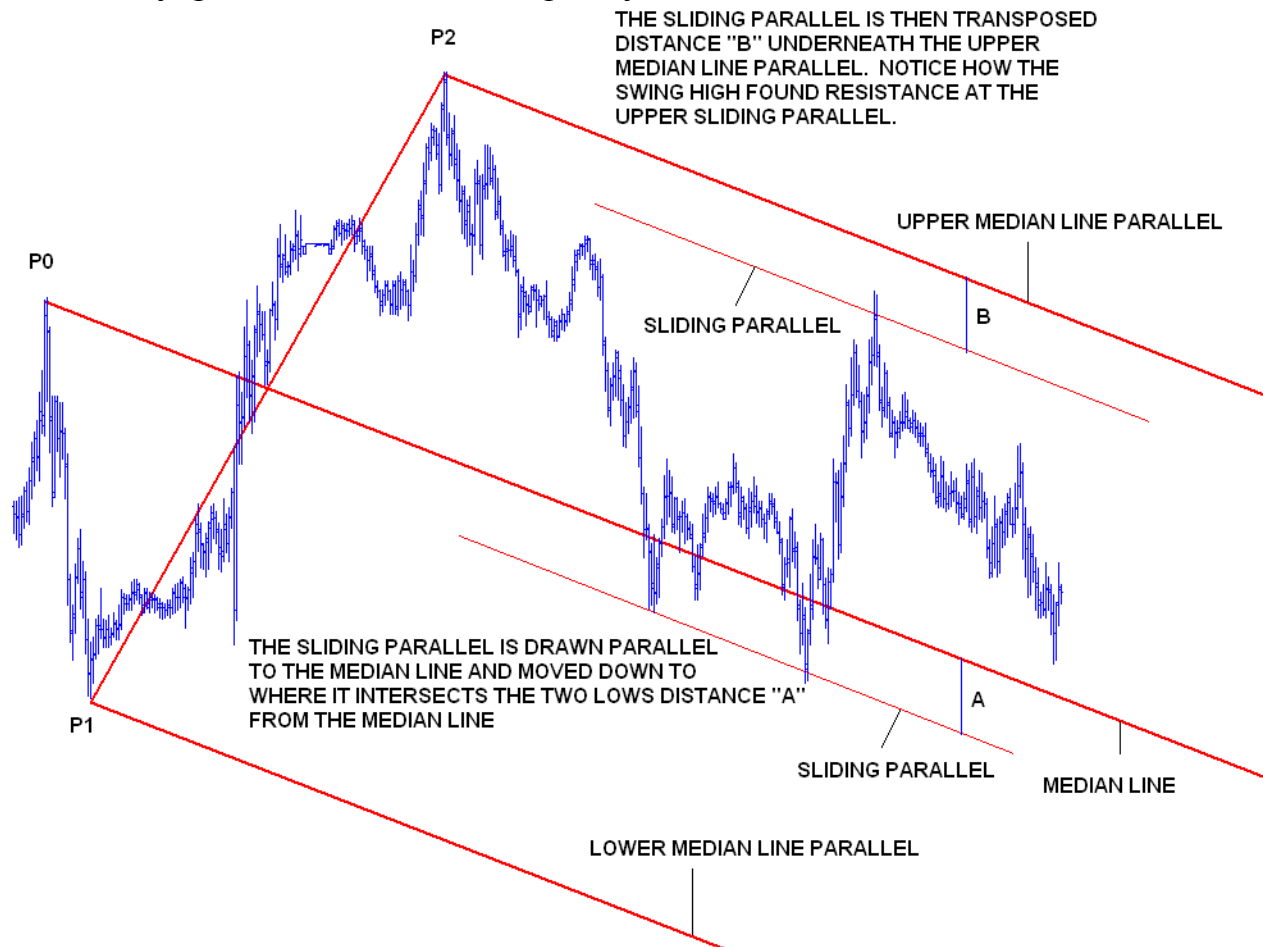


Figure 47. Price finding support/resistance at the sliding parallels.

The figure below illustrates inside sliding parallels within an up sloping Median Line set. After price briefly broke below the lower Median Line parallel, it rallied and then fell back towards it, but fell short of it distance A.

Price rallied higher from that point and briefly broke above the Median Line distance B. After price began to retreat, the lower and upper sliding parallels could have been drawn. After confirming distance A = B, price appears to have shifted slightly UP within the Median Line set.

At that point, it could be assumed the most likely line to support price would be the lower sliding parallel.

Notice once again that the slope of the Median Line set defined the proper slope of the sliding parallels.

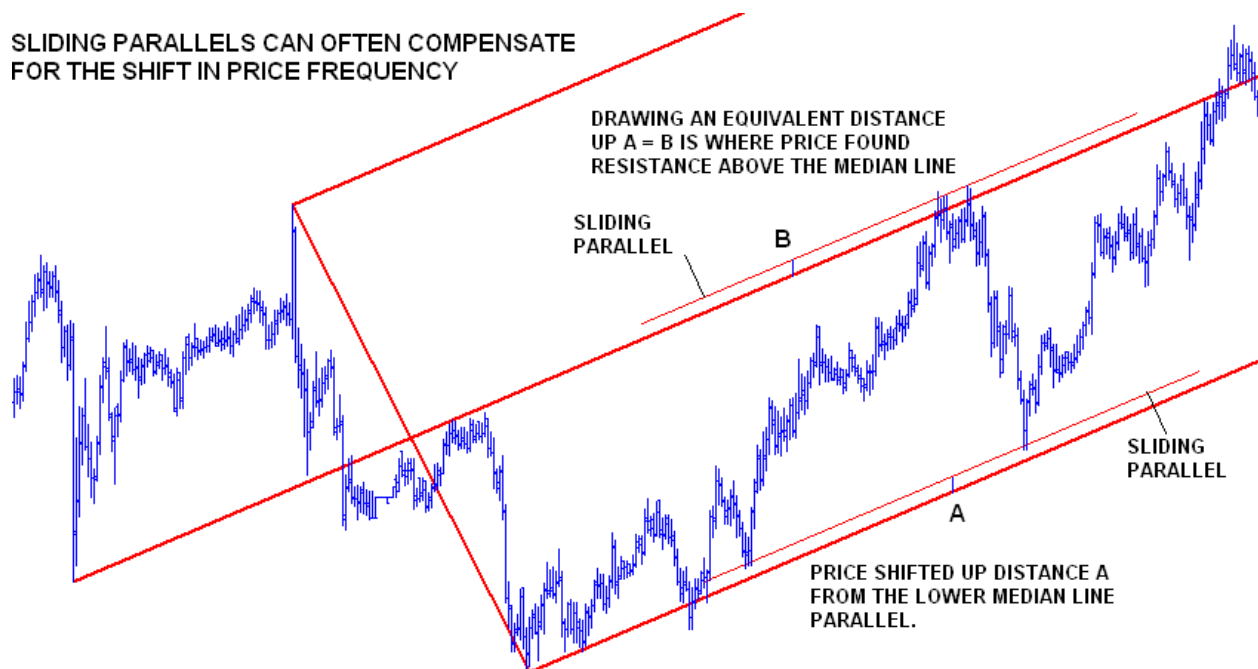


Figure 48. Price finding support/resistance at the sliding parallels.

At times, the slope of the Median Line will set the proper slope for drawing the sliding parallels, but price does not cycle between the sliding parallels the same distance as between the Median Line and the Median Line parallels as in the previous examples.

In the example below, the distance between the sliding parallels, B, is less than the distance between the Median Line and its parallels, A.

Notice how many times the lower sliding parallel provides support for price, and how many times the upper sliding parallel provided resistance.

In this example price shifted DOWN within the Median Line set, but the range of the oscillation of price SHRANK.

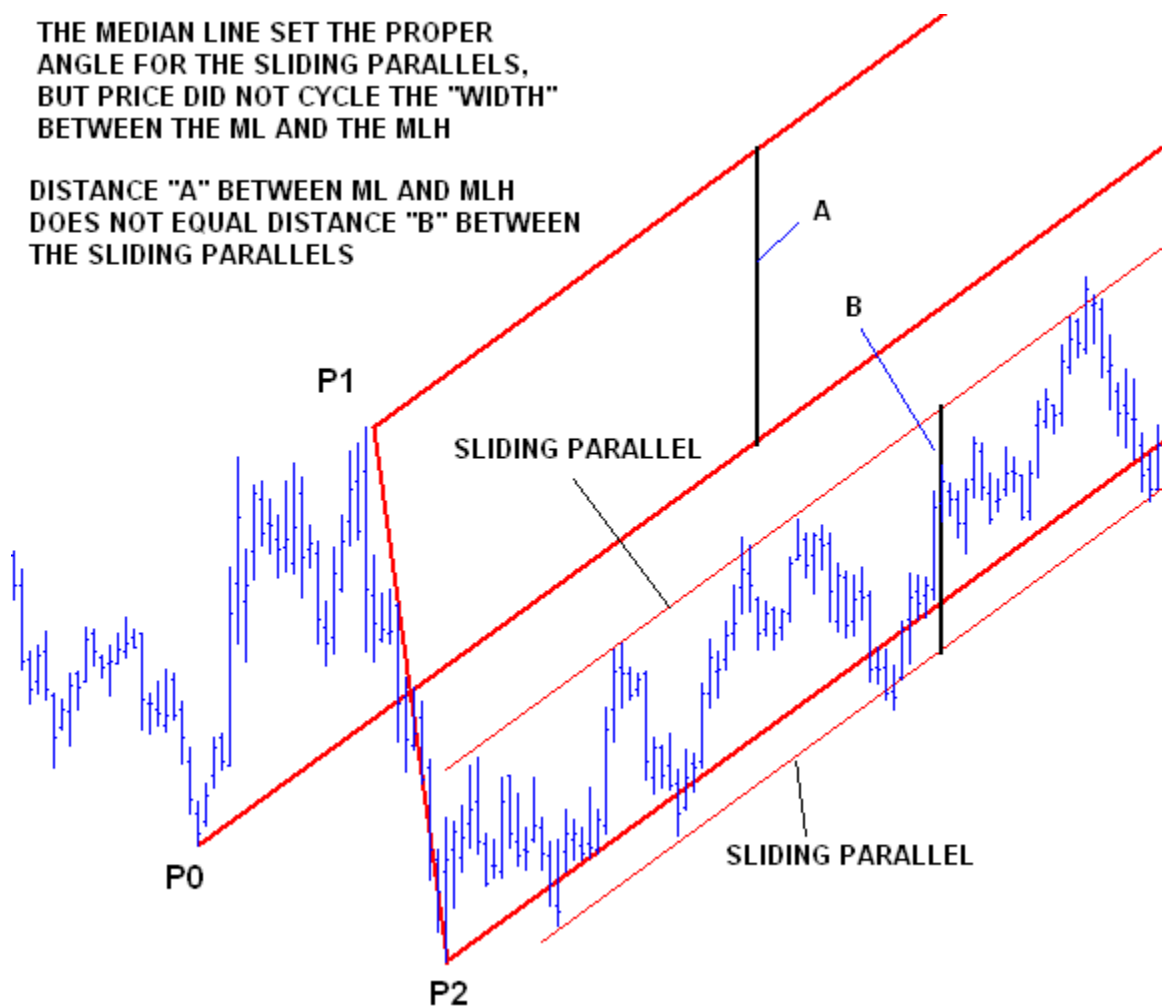


Figure 49. Distance between sliding parallels less than ML to MLH.

Price may also cycle around the Median Line slightly WIDER than the Median Line parallels. Sliding parallels can also be drawn ABOVE the upper Median Line parallel and BELOW the lower Median Line parallel to catch the upper and lower extremes.

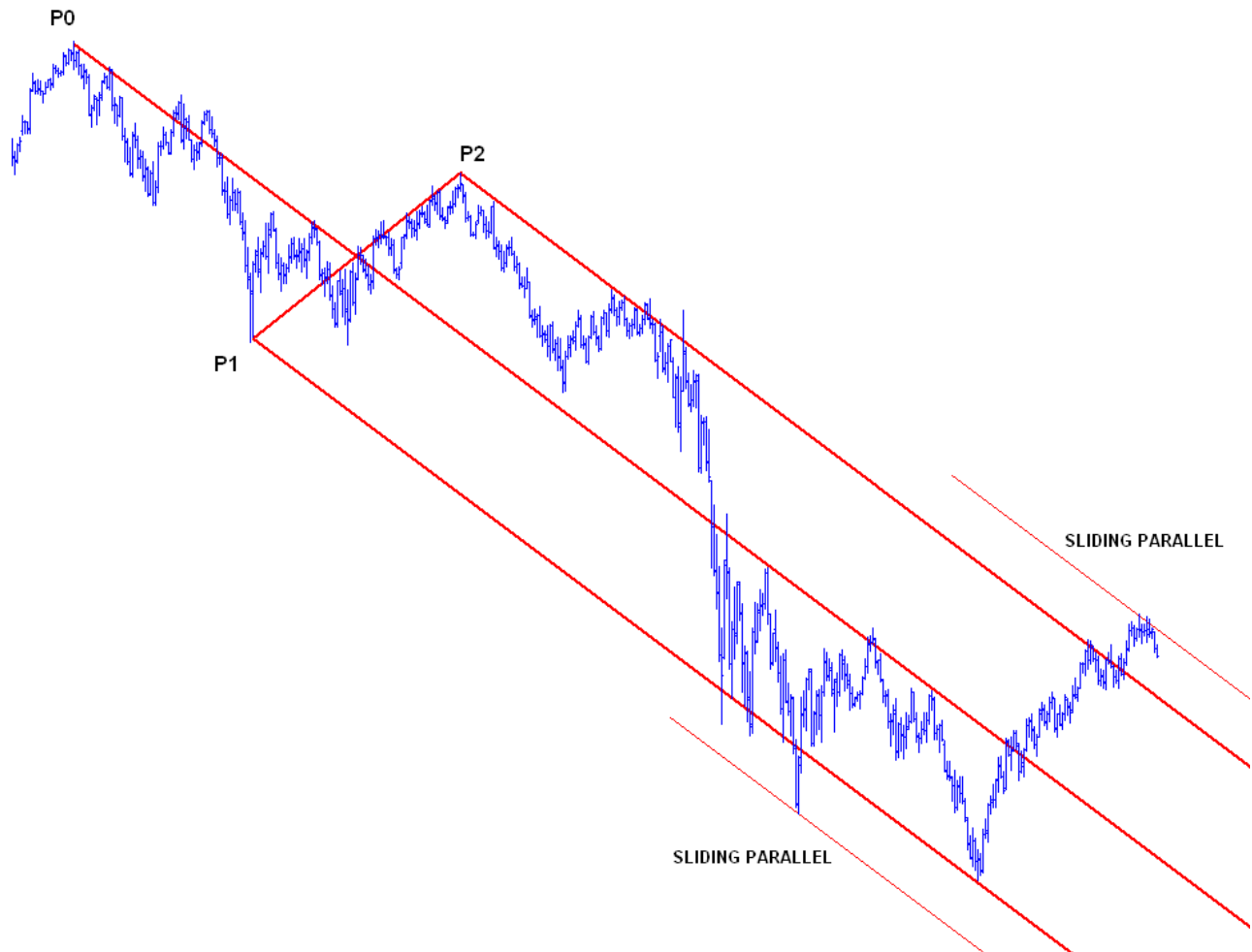


Figure 50. Sliding parallels catch the extremes below and above the MLH's.

The most important point to realize about sliding parallels, is the fact that the Median Line set drawn from P0, P1, and P2 pivots will often set the proper slope on which price finds support and resistance. When the Median Line parallels do not provide support/resistance, sliding parallels can be used to compensate for the “shift” in price that occurs, or the change in the distance price oscillates within or outside the Median Line set.

Warning Lines

Warning lines are simply extensions of the Median Line parallels and are drawn equidistant from the Median Line parallels as the distance the Median Line parallel is drawn from the Median Line.

“Warning line parallel to MLH and same distance from MLH as MLH is from ML. Probability of a pivot at or near WLs.”

~ Dr. Alan Andrews, Action-Reaction Course

Warning lines can be drawn after price breaks out of a Median Line set that price has been respecting fairly well....

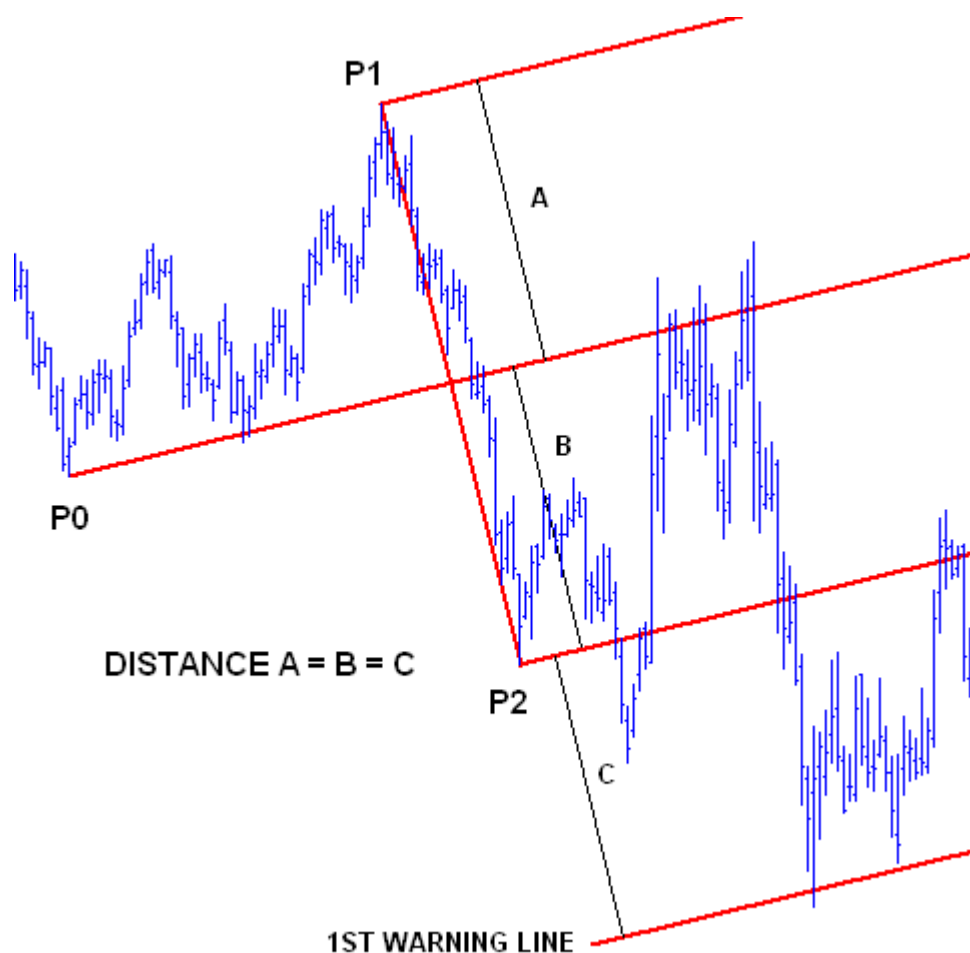


Figure 51. Price finding support at the first warning line.

...or, they can be drawn after a price failure.

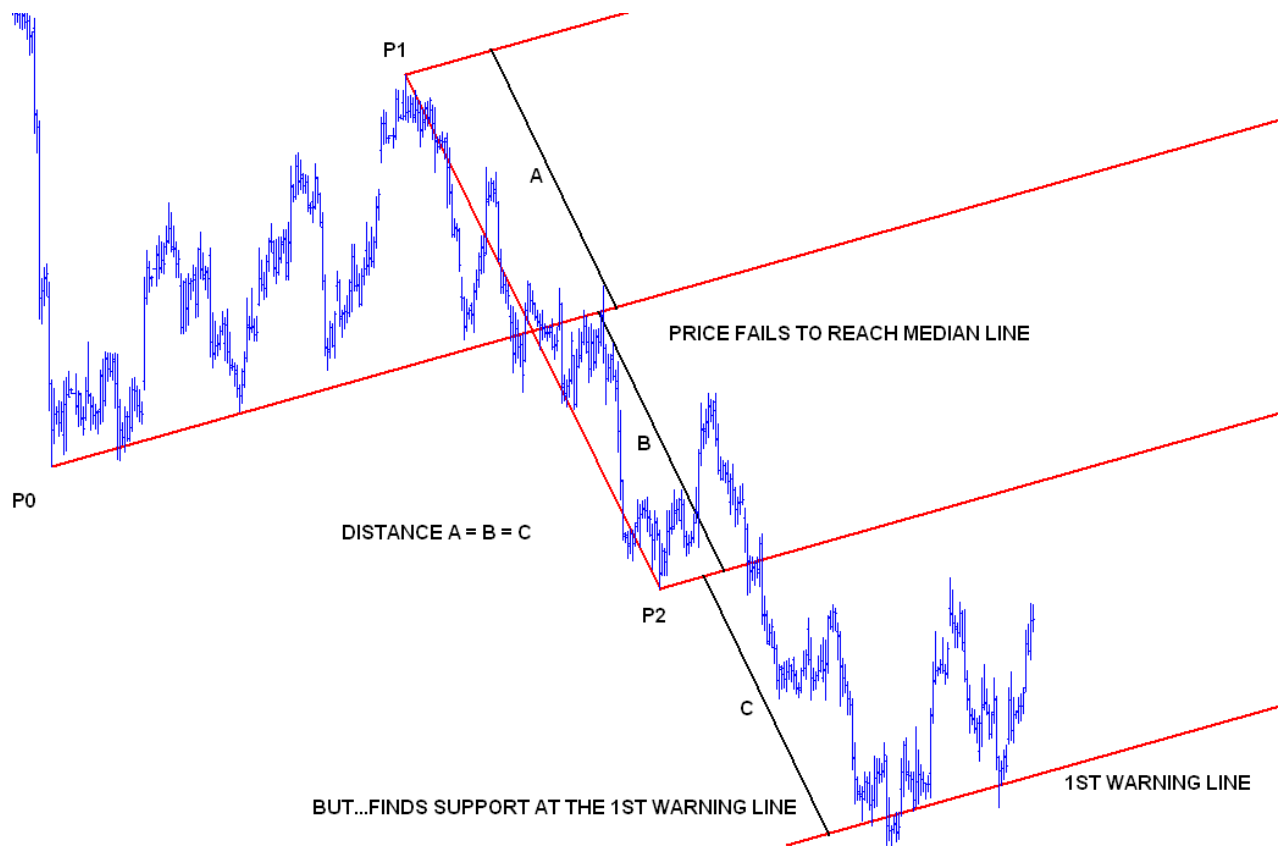


Figure 52. Price finding support at the first warning line after a price failure.

PART VIII

The “Other” Median Line

The Modified Schiff Median Line

Andrews taught a modified technique developed by one of his students, Jerome Schiff, a New York floor trader. What Andrews labeled the “usual” Schiff Median Line involved moving the “handle” of the Median Line set 50% vertically (down or up) from the P0 pivot to the P1 pivot. The “usual” Schiff Median Line is used very rarely today.

Andrews modified the configuration and labeled it the “modified” Schiff Median Line. The only difference being the location of the “handle” of the Median Line set. The modified Schiff Median Line is drawn by moving the “handle” of the Median Line set 50% vertically (up or down) from the P0 pivot to the P1 pivot, AND, 50% horizontally (to the right) from the P0 pivot to the P1 pivot as shown in the figure below.

“...the starting point is not under the top close..., but at the half way mark of the line sloping from that high to the low close...”

~ Dr. Alan Andrews, *Action-Reaction Course*

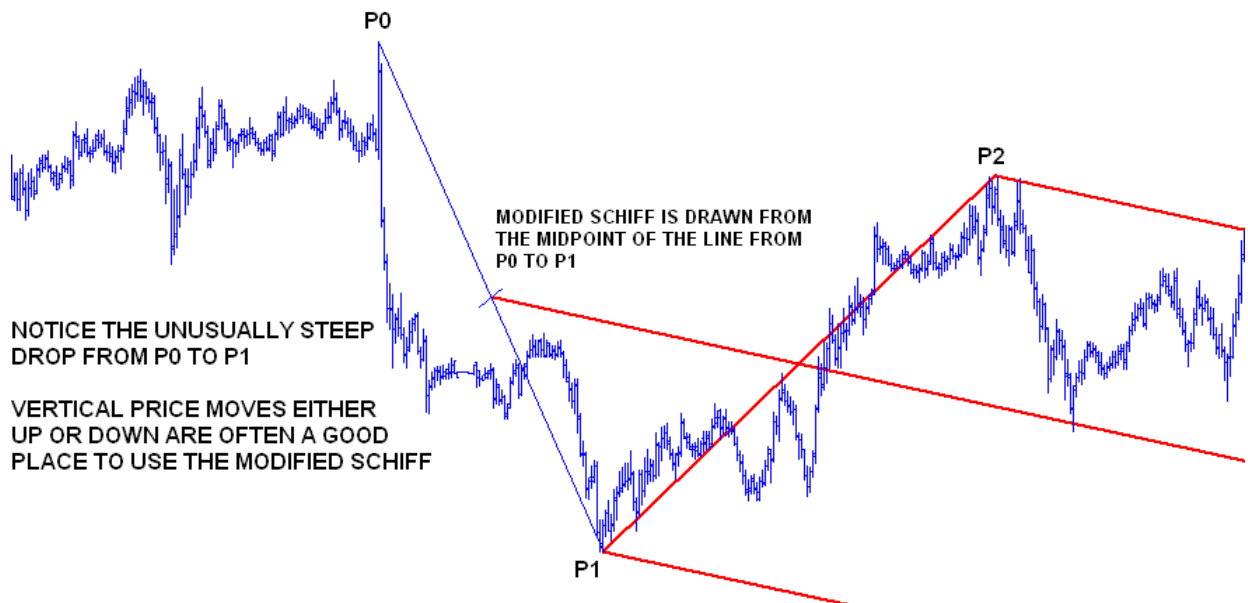


Figure 53. Example of a down sloping “modified” Schiff Median Line.

The modified Schiff Median Line can be used when price heads toward the Median Line, but before reaching the Median Line, begin to drift sideways, moving away from the Median Line.

The modified Schiff Median Line is most often useful when the regular Median Line is unusually steep. Once again, the procedure for drawing a modified Schiff Median Line is the same as a regular Median Line except the starting point, or “handle”, is drawn at the midpoint between P0 and P1 rather than from P0.

A quick way to draw the modified Schiff Median Line is to draw a standard Median Line (P0 can be anywhere prior to P1), and then draw the “handle” of the modified Schiff Median Line at the mid-point of the P1 – P2 line (see figure below).

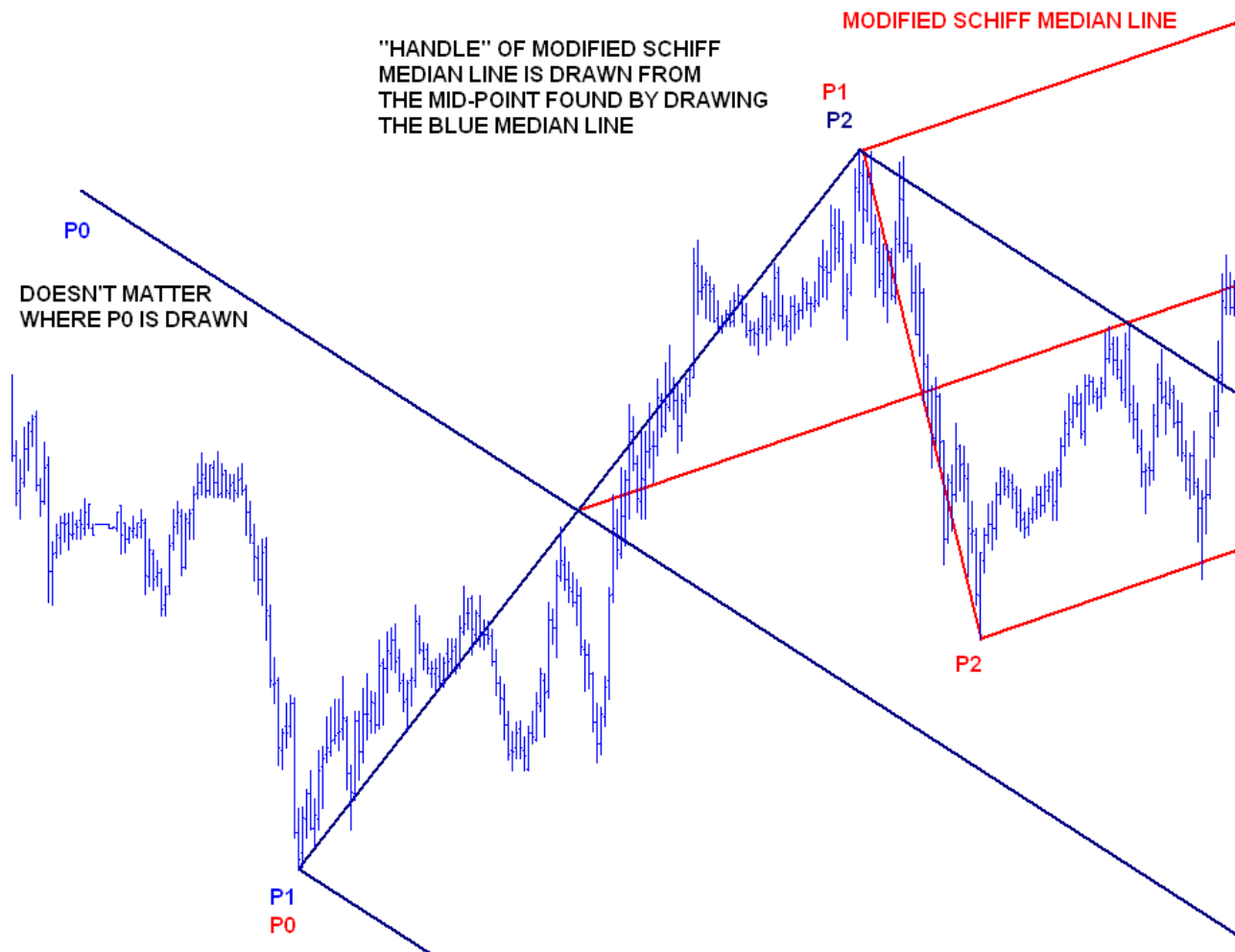


Figure 54. Example of an up sloping “modified” Schiff Median Line.

PART IX

Expanding the Term “Pivot”

Andrews defined pivots in his original course as,

“...a turning point. It is the extreme on a bar chart where a change in trend takes place.”

~ *Dr. Alan Andrews, Action-Reaction Course*

Upon a quick glance, most would assume this means a true price reversal – price goes up, stops, and turns back down. However, if we look at the word from an engineering perspective, we can describe a pivot as,

“...about which something rotates or oscillates”.

Andrews was an engineer trained at MIT, who later taught engineering courses at the university level. It would probably be safe to say he thought in engineering terms. That being said, he likely viewed price pivots as,

“about which PRICE oscillates”.

This definition brings about a much wider view of the word.

Andrews defined a price gap,

“...when no price on today’s range is opposite any of yesterday’s range.”

And,

“...a gap, (which is 2 P’s)” or 2 pivots, and “...a gap being a **negative reversal**.”

~ *Dr. Alan Andrews, Action-Reaction Course*

Based on these observations it appears Andrews viewed price gaps as pivots as well in the sense that he defined the word pivot.

Andrews also added,

“Technically and empirically the price at one extreme of a days range may be opposite the extreme of the next day’s range, and still have the properties of a true gap.”

~ *Dr. Alan Andrews, Action-Reaction Course*

Andrews could be referring to a price “plunge”, or acceleration, as he mentioned from time to time throughout the course. A price acceleration is characterized by a long price bar that passed through one of his lines.

Using these observations, it can be surmised that Andrews viewed price reversals, price gaps, and price accelerations as “pivots” about which price oscillates. Interpreting Andrews’ words in this sense puts aside the view as a “pivot” being merely a price reversal.

Andrews also wrote,

“The probability of the next P being at the latest ML seems to be about 80%.”

~ *Dr. Alan Andrews, Action-Reaction Course*

At first glance, it would appear that Dr. Andrews meant prices reverse at the latest Median Line 80% of the time. With the expanded definition of “pivot” including a gap (which Andrews called a negative reversal) and acceleration, it can be deduced that Andrews was saying 80% of the time price will reverse, gap, or accelerate at the latest Median Line.

The term “pivot” may be a bit limiting. Perhaps a more acceptable term would be “significant price event”. This term insinuates that when price reaches one of the Andrews lines – price SHOULD do something significant. The significant possibilities include price reversing, gapping through, or accelerating through the lines.

PART X

Finding High Probability Lines

Which Pivots do I Draw From?

The most often asked question when attempting to apply Median Lines to price charts is,

“From which pivots do I draw the lines?”

The simple answer is,

“Draw the lines that price reacts to the most.”

Price will react to meaningful lines in three ways:

1. price will **reverse**,
2. price will **accelerate through**,
3. or price will **consolidate around** the line (often in a symmetrical fashion).

As stated before, think thoroughly through what a “pivot” really is. A pivot is a place on the price chart where something significant happened in the past. A line drawn from significant events from past price action is more likely of “causing” significant price events in the future.

“What is a high probability line?”

A high probability line is one which can be anticipated before hand to be a quality area to enter a trade with a low risk stop. A line which has been support or resistance can be anticipated to be support or resistance in the future. A support or resistance line that causes price to reverse repeatedly can be an opportunity to take a position with the expectation that price will reverse at the line once again. If price accelerates through the line, it is likely an indication that price will continue in the direction it was traveling prior to the acceleration.

“A profit is probable if you reverse positions when prices meet the ML.
Even when prices pass beyond the ML a reversal back to the ML is probable

even though that penetration predicts the probability of a further move of prices in the same direction as when they penetrated that ML.”

~ Dr. Alan Andrews, *Action-Reaction Course*

A standard Median Line set will not always provide the highest probability of price interacting with it. That's where the other lines come in. The modified Schiff Median Line often works well after a steep rise or drop in price.

Sliding parallels often work well if the “frequency” of price has slightly shifted outside or inside the Median Line set.

Warning lines often provide support/resistance if price quickly moves out of the Median Line set. For example, the next chart illustrates a standard Median Line set where price drifts below the lower Median Line parallel. Notice that the lower Median Line parallel does not provide support and price quickly drifts below the Median Line set.

When this happens, it is often best to look at the other tools available that may help find lines where price will find support/resistance.

The Median Line is upward sloping suggesting an uptrend, so we will be looking for support on the lines.

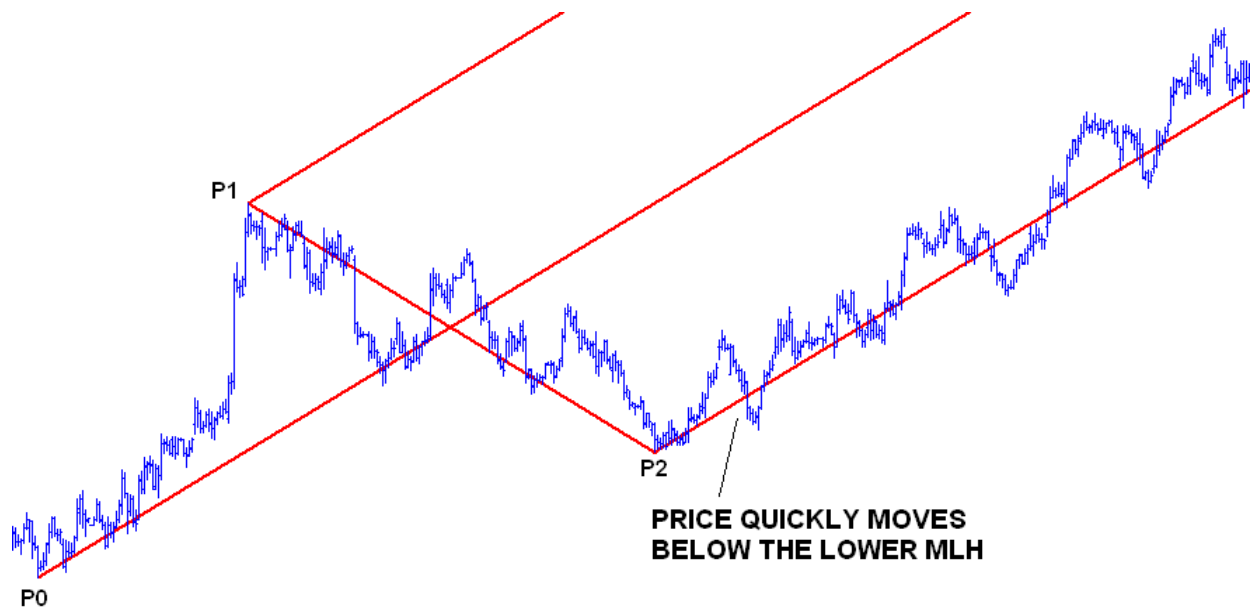


Figure 55. Example of a standard Median Line where price is not supported.

Now, by adding a sliding parallel beneath the lower Median Line parallel, we find a line price has interacted with several times and found support.



Figure 56. Sliding parallel below the lower MLH supports price.



Figure 57. Sliding parallel above the lower MLH resists price.

By drawing a modified Schiff Median Line set from the very same pivots, look what happens. Notice there are several interactions with the modified Schiff Median Line and its lower parallel.

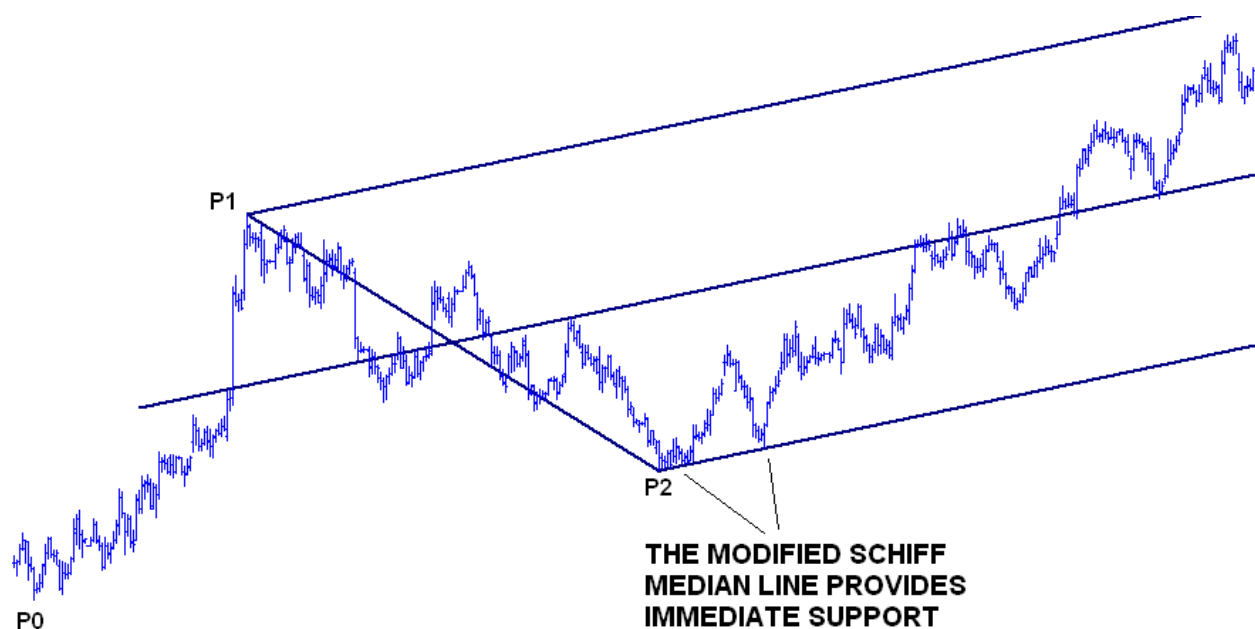


Figure 58. Example of a Modified Schiff Median Line.

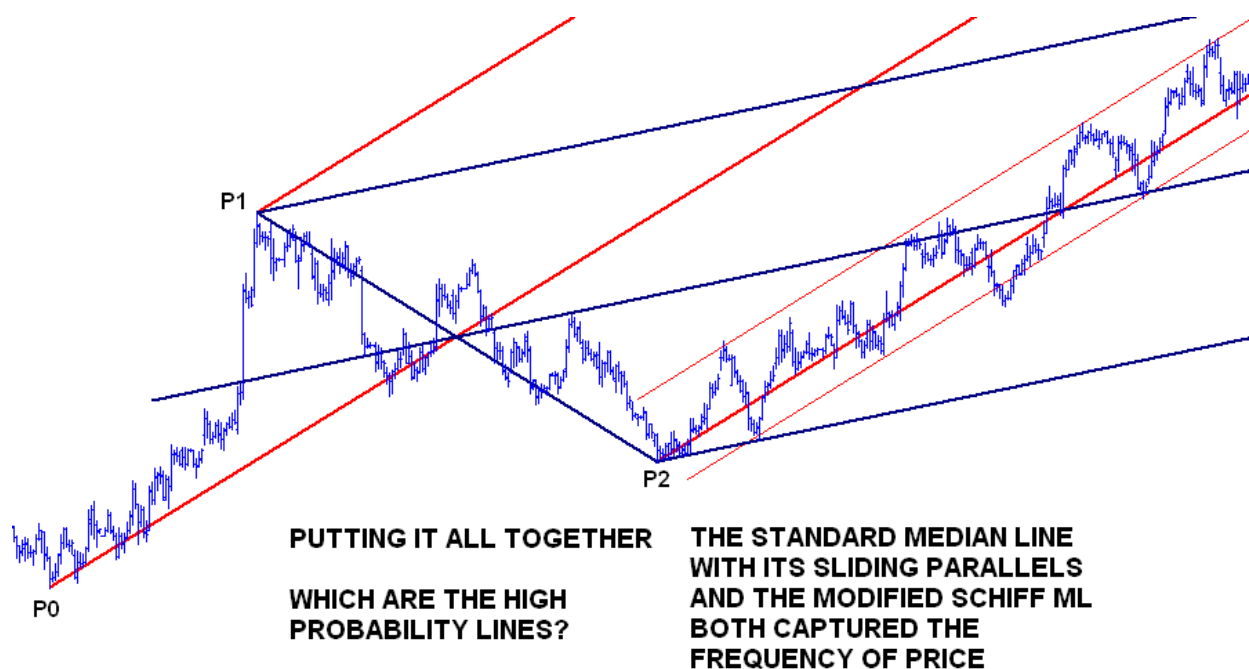


Figure 59. Both standard and modified Schiff ML's create support/resistance.

Turn Support/Resistance Lines “At an Angle”

Many are aware of horizontal support and resistance levels on a price chart. What often happens at these support/resistance lines? Support lines later become resistance lines and resistance lines later become support lines. In other words, price often acts significantly – most often it reverses at the lines or it accelerates through the line.

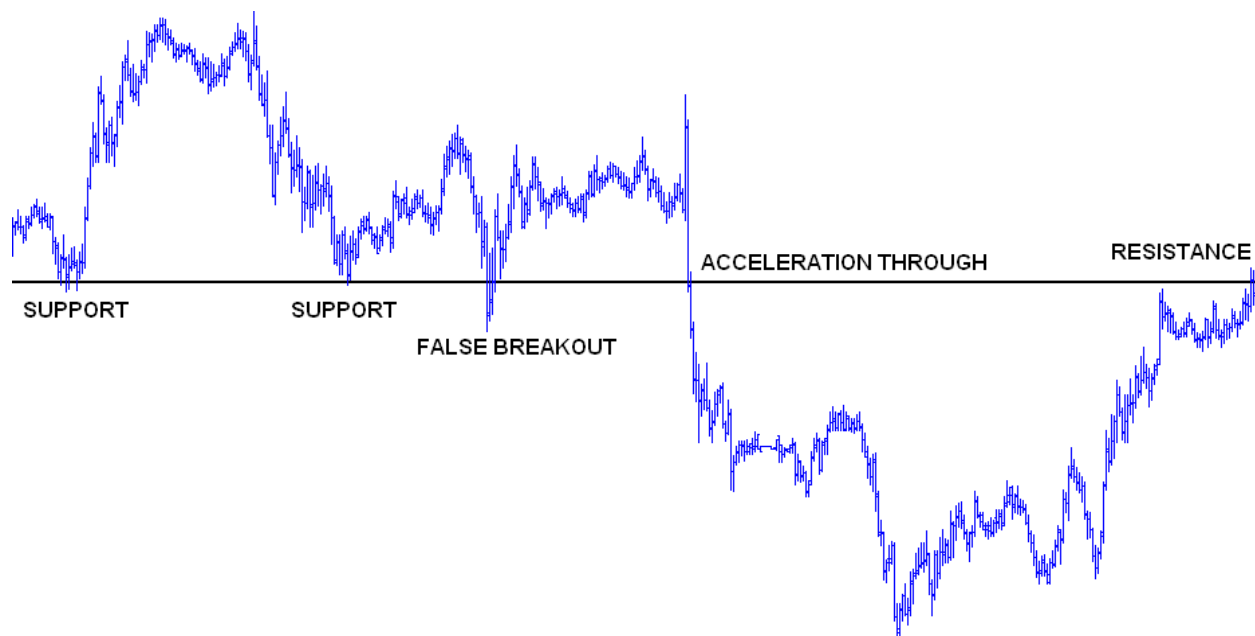


Figure 60. Price Action at a Horizontal Support/Resistance Line.

The same mentality can be applied to Median Lines and its parallels. Most often Median Lines are not horizontal. There are advantages Median Line sets have over horizontal support/resistance lines.

- 1.) Median Lines are upward sloping or downward sloping and give an indication of the direction of the trend in addition to providing a “support/resistance” line.**
- 2.) Median Lines add a “time” factor. Horizontal support/resistance lines offer a potential “place” where price will find support/resistance. Median Lines not only offer a “place” where price will potentially find support/resistance, but a “time” as well. The word “time” can be substituted with “space” or “area” for non-time based charts.**
- 3.) Median Lines have a mathematical relationship (probability) of price reaching it after being drawn from three alternative, consecutive pivots.**

This reiterates the idea introduced earlier by Andrews' statements,

“...drawing a single line will enable you to know where the price of any stock or any future is now headed and the probable time it will reach there.”

“...enable the user to be one of the few who can tell where the prices are headed, and the place they will reach about 80% of the time, and when approximately that place will be reached.”

~ Dr. Alan Andrews, Action-Reaction Course

Putting it All Together

The best way to understand the method and how it applies to the markets, is to simply start drawing and using the tools. The following charts are illustrations of various Andrews' tools.

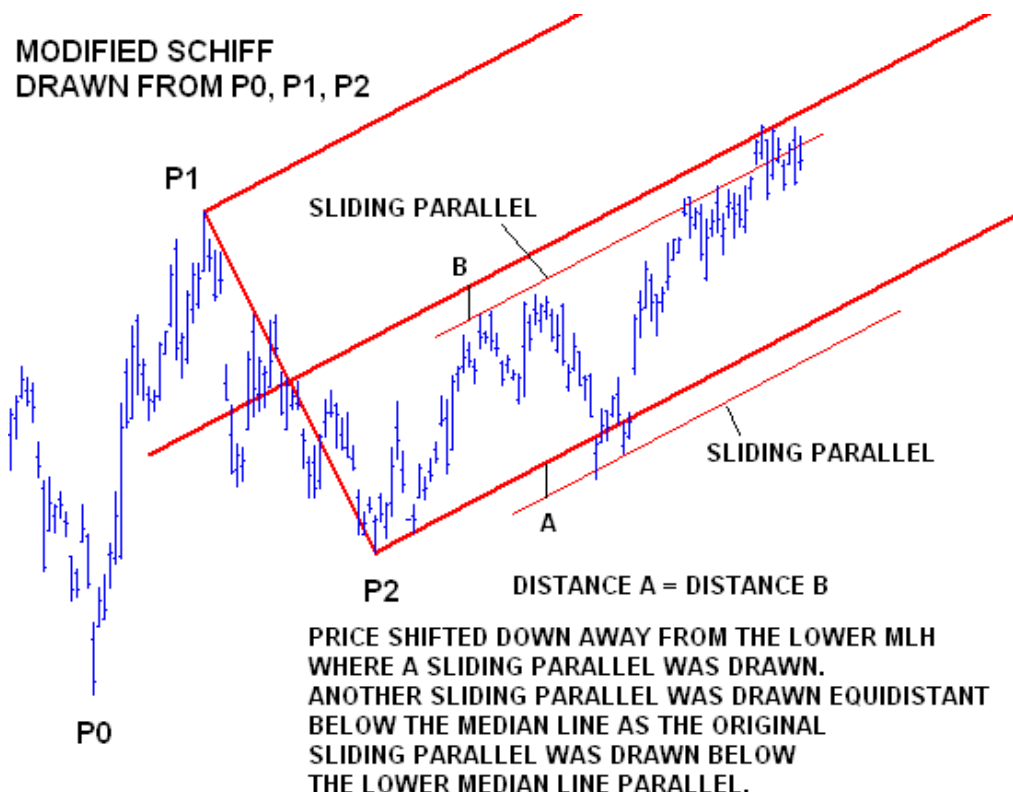


Figure 61. Modified Schiff Median Line and sliding parallels.

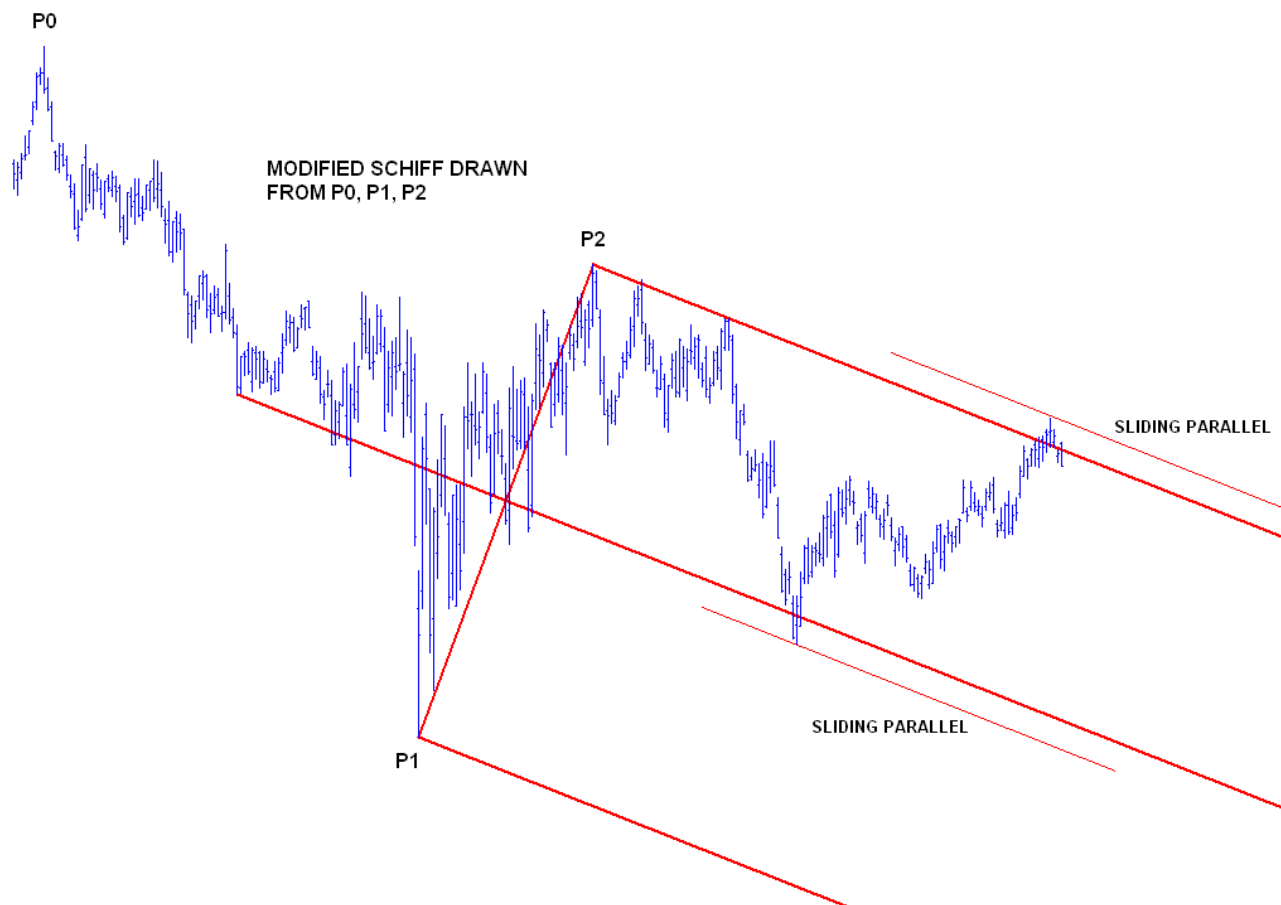


Figure 62. Modified Schiff Median Line and sliding parallels.

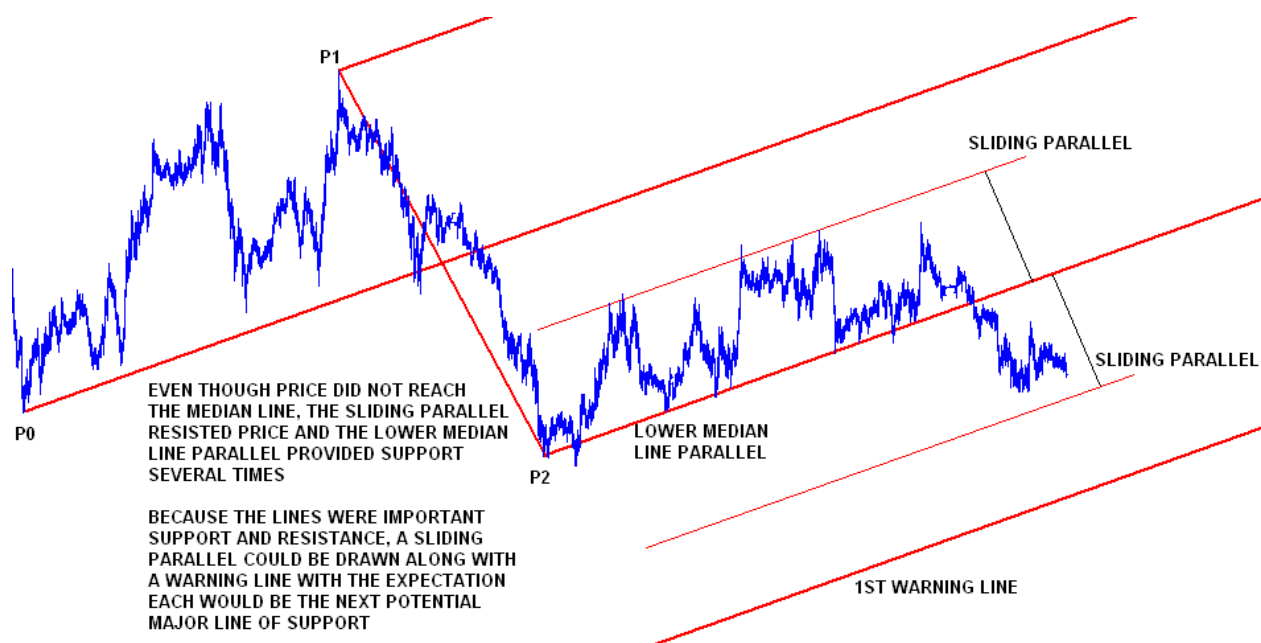


Figure 63. Standard Median Line and sliding parallels.

PART XI

Summary

The Median Line method of technical analysis of the markets is truly a fascinating, yet simple method. As with anything, practice and experience play a major role in being successful.

The following ideas will be repeated to reiterate their importance in finding high probability lines:

“Draw the lines that price reacts to the most.”

“A meaningful line will have significant price action around it.”

Price will react to meaningful lines in three ways:

- 1.) price will **reverse**,
- 2.) price will **accelerate through**,
- 3.) or price will **consolidate around** the line.

Think of Median Lines and their parallels as having similar properties of horizontal support/resistance lines with the following advantages:

- 1.) **Median Lines give an indication of the direction of the trend,**
- 2.) **Median Lines add a “time” factor,**
- 3.) **Median Lines have a mathematical relationship (probability) of price reaching it.**

And, perhaps the most important idea is, in order to become proficient in the Median Line method,

“KEEP DRAWING THE LINES!”