

THE REIF SWING CHART METHOD

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INTRODUCTION

The purpose of this paper is to provide the analyst with a precisely defined method for plotting a swing chart. This method plots the 5 minute, hourly, daily, weekly, monthly quarterly, and yearly time frames in exactly the same way without exceptions. The author will show how any price action is plotted, so that all the key highs and lows are identified. It will be show how the plots of various time periods are related to each other using the "wheel concept" of cyclical analysis. It will be shown that one of the most useful observations is the study of price behavior after the various swing charts turn up or down.

BACKGROUND

W. D. Gann was one of the first market analysts to develop various types of swing charts. In his book, *How to Make Profits In Commodities*, Gann described the use of a 2 day, 3 day, and a 7 calendar day chart. In his *Stock Market Course*, he developed an entire trading method on a swing chart approach called the Overnight Chart. In addition, in his books *45 Years on Wall Street* and *New Stock Trend Indicator*, he described two types of 3 day charts: a trading day version and a calendar day version. The author has found it very difficult to use all of these charts, because there are times when the price action is so volatile that it becomes quite difficult to know how to plot it. Moreover, Gann did not provide us with the method he used to tie the analysis of all these charts together so that a consensus forecast could be made.

There have been other methods that provide the analyst with precisely defined pivot points. Arthur Merrill, in *Filtered Waves*, described an excellent method to measure swings in the market. He used a percentage reversal that would filter out any reversal less than the percentage selected. For example, if the analyst only wanted to see swings greater than 10%, the chart would remain up until a 10% or more decline, from the highest high reached up to that point, occurred. Once a decline of 10% occurred, the last high was defined. The next low would not be defined until the market moved up 10% from the lowest point reached. In 1979, Merrill published *M & W Patterns*, which provided excellent research on the probabilities of any given 5 point wave (M or W) to project future price action. The author has had trouble with this approach wondering if a 9.7% correction was not significant, while a 10.1% correction was significant. Despite this concern, I have found this approach to be quite helpful in defining key pivots in market action.

Jerry Favors, of *Jerry Favors Analysis*, is probably the modern day expert on the Gann swing charts. In his presentation before the Market Technicians Association monthly meeting in November, 1990, he described an Inside 5, a Daily Trendline, and a Three Day Chart. Favors keeps numerous swing charts, each having its own rules for plotting and analysis.

Another approach was developed by John R. Hill in his book, *Stock and Commodity Market Trend Trading by Advanced Technical Analysis*. Hill describes a method to determine a pivot point with a swing being the movement from one pivot point to the next. In his book, a top pivot point is defined as the highest point reached in a swing prior to the penetration of the low of the top day. A bottom pivot point is the lowest point reached in a swing prior to the penetration of the high of the low day. The main problem I have found with this approach is determining what to do when a long bar period presents itself in the price structure.

In 1986, after studying all of the above methods in great detail, the author decided to try and develop a single plotting method that was precisely defined and that could be used on any time frame, be it a 5 minute chart or a yearly chart. In addition, I wanted the chart to show the periods that were not plotted, including "inside periods" and "multiple plot" periods. I also wanted to be able to study a daily, weekly, monthly and quarterly chart of a stock or commodity and compare each chart's picture at key historical turning points. This effort led to the following plotting rules.

THE REIF SWING CHART DEFINED

The following instructions apply to any time period, and to any stock, commodity, or index. The following describes how the daily swing chart is plotted.

Let us assume that we have the following daily price information on Pork Bellies:

DATE	OPEN	HIGH	LOW	CLOSE	CHANGE
10/2	6510	6605	6510	6550	+30
10/3	6575	6650 ↑	6560 ↑	6560	+55
10/4	6610	6675 ↑	6540 ↓	6545	-60
10/5 *	6650	6630 ↓	6550 ↑	6575	+30
10/6	6540	6675 ↑	6510 ↓	6645	+70
10/9	6675	6750 ↑	6650 ↑	6705	+60
10/10	6700	6745 ↓	6630 ↓	6630	-75

To plot the swing chart of the above price action, you need a starting point. In this example, the data for 10/2 is the starting point. On 10/3 we have a higher high and a higher low (if you use a red and green fine line pen, it is easier to follow and visualize). Place the arrows on the data series, and for 10/3 place a green up arrow beside 6650 and 6560. If the low had been equal to the 10/2 low, the arrow would still be pointed up as the chart stays up until a lower low than the prior period's low is made. On 10/4 the price action is higher than 10/3 at the opening but later in the day the price trades lower than 10/3's low. This action turns the chart down and there are two plots placed that day. First, take the chart up to the high made on 10/4 and then take the chart down to the low price reached on 10/4. Place a green square on the high price reached on 10/4, and mark the high price reached on the chart. The 10/4 high is called a confirmed high (see Chart #1). Note: The closing price is not plotted on a swing chart, only the highs and the lows are plotted. Another piece of important information is recorded on the plot after the close on 10/4. The price that had to be penetrated to turn the chart down was 6550. *prior low* A tick mark is placed on the plot at that exact price as shown in Chart #1 at A. On 10/5, with the last plot being down, there is a higher low and a lower high. This day is not plotted but is noted on the chart with the date as in the plotted example (Chart #1). This is down inside day. On 10/6 the price opens down and goes lower than 10/4 and then turns up exceeding the price of the 10/5 high. Place a square around the low of 6510 (which is now confirmed low) with a red pen along with the red down arrow. The plot is then taken up to the high of 10/6, and this is another two plot day. Again place a tick mark on the plot at 6630. *prev high*

On 10/9 the high and the low are higher so the chart is plotted up to the high of that day, along with the green up arrows. On 10/10 there is a lower high and a lower low, and the moment the prior day's low of 6650 is penetrated we place a square around the highest high reached in green and take the chart down to the low reached. This action created a confirmed high of 6750 on 10/9. We knew that the chart turned down the moment that a low lower than 6650 was made. It was not until after the close that we know how far down to take the plot. The same action is taken when the prior day's high is penetrated and we know that the chart is up, but we don't know how far to plot it until the market closes. Below in Chart #1 is shown the plot of the above action. Note: The prices of the highs and the lows have a square around them on the data records and the prices are noted on the chart. Note the reversal days of 10/4 and 10/6 and how the arrows show the price action, and also that the date of the inside day is shown although there is no plot for the day 10/5.

Use arrows on the chart to show the reversals on 10/4 and 10/6. 10/5 is written between the spaces in red to denote the inside day. An asterisk is placed next to the price action in the data to show this day was an inside day.

There are times when you use the open and close to ascertain whether the high or the low came first on a day. It is also possible to have a 3 or more plot day. In these cases it might require a source of hourly data or a call to your broker to get the swing highs or lows during the day.

Assume that we have trading day 10/11 as follows:

DATE	OPEN	HIGH	LOW	CLOSE	CHANGE
10/11	6605 ↓	6775 ↑	6430 ↓	6430	-200

This day presents a problem for us. We had taken the chart down after the close on the 10/10 to 6630. On 10/11 the price opened lower so we know that we have to take the chart down to at least 6605, yet during the day, the prior day's high of 6745 was exceeded on the upside thereby turning the chart up. Obviously later during the day the market reversed and took out the low of 6605, a confirmed low made the same day, and closed down limit. In a case such as this

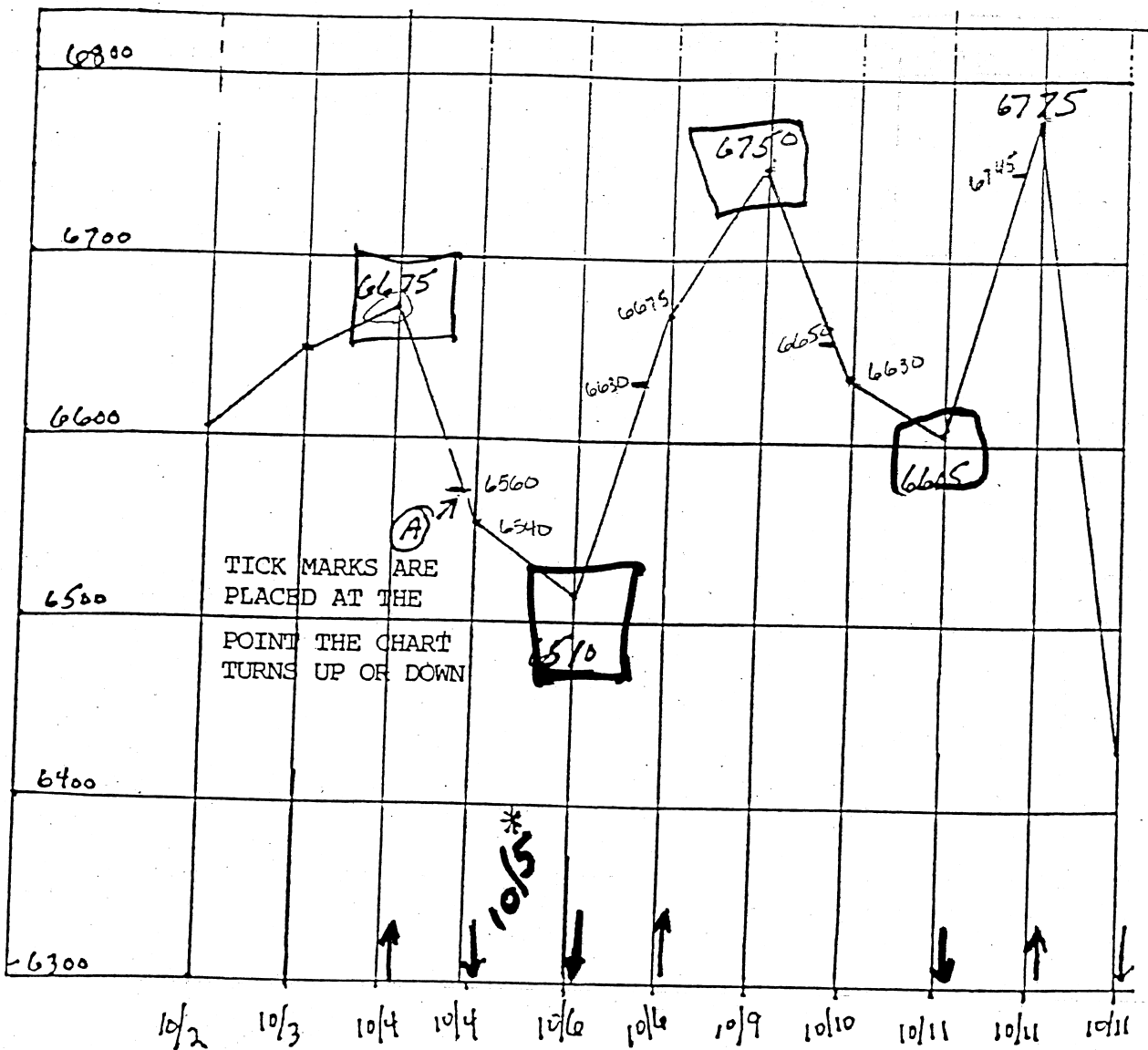


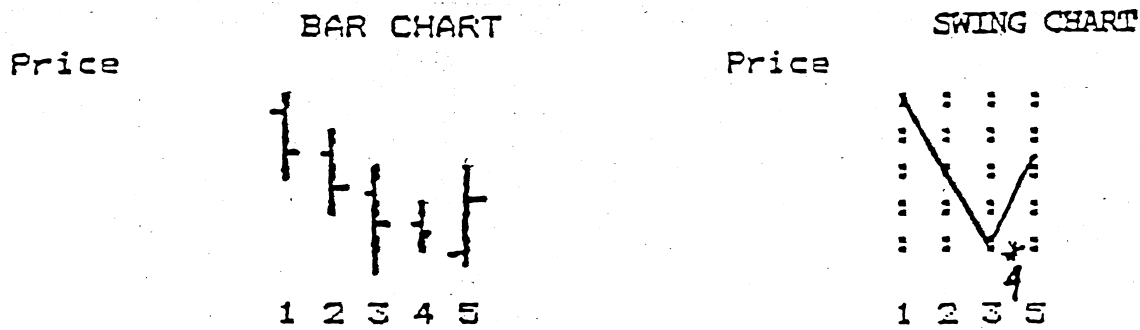
Chart 1 - Daily Swing Chart on Porkbellies

you have to assume the initial low was the open, take the chart down to 6605, a confirmed low, then up to the high of 6775, a confirmed high, and then down to the low of 6430. This is a 3 plot day which is very rare, but it does happen. Had we known the low made after the open with a source of hourly data, this low would have been the first low plotted on 10/11.

These plotting rules are designed so that there can be no misunderstanding of what to do with any price action. Below are examples of situations that occur quite frequently and how they should be handled. A series of bar charts days are shown in a row and then how the swing chart would be plotted.

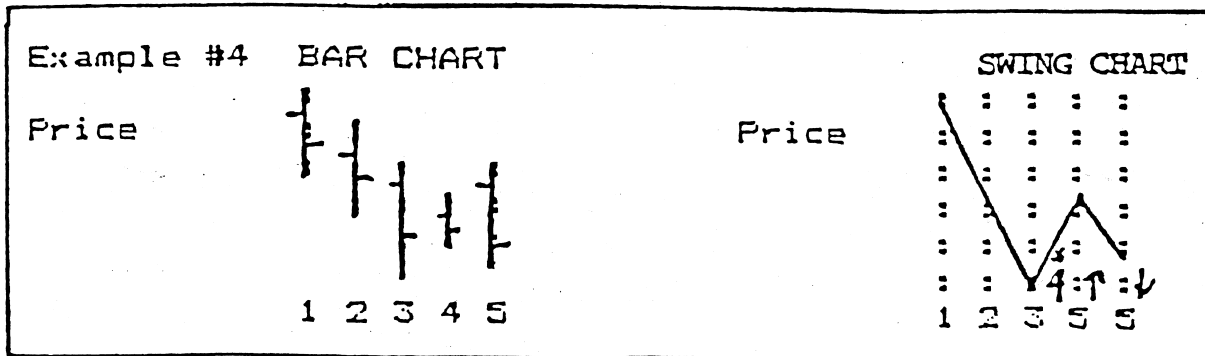
In Example #1 the swing is plotted higher each day until day #4, which is an 'inside' day (the high is less or equal to day 3 and the low is higher than or equal to day 3) consequently day 4 is an 'inside' day and is noted on your chart as a 'no plot' day as described above. Now comes the tricky part. On day 5, you have a price action that has a higher high than day 4 and the high is lower than or equal to day 3. Day 5 also has a lower low than day 4, but the low is equal to or higher than the low of day 3. In other words, you have an 'outside' day of day 4, but 'inside' of day 3. In this example you must bring the swing chart down from the day 3 high to the day 5 low because the high on day 5 occurred first. This is most likely since the day 5 opening was higher than the day 4 close and since the chart was already plotted up to day 3's high, and day 5's high was less than or equal to day 3, the chart could not be taken up or plotted higher; however, the moment day 4's low was penetrated the chart turned down and a square was placed around the high of day 3 on

Example #3



Example #3

Note: The open and close on day 5 indicate that the low occurred first. Since the swing chart was already down you could not plot lower. When the high of day 4 was exceeded, the chart turned up creating a confirmed low on day 3. You don't know how high to plot until the close of day 5. The low of the plot is established the moment that day 4's high was penetrated.



Example #4

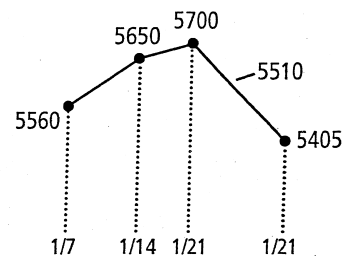
In this case the high occurred first on day 5 as shown by observing the opening price, and day 5 is plotted twice. This action creates a confirmed low on day 3 and a confirmed high on day 5.

There will be times that the only way to determine what happened first, the high or the low, is by the observation of the day's opening price and the prior day's close or via a source of hourly data. It is important to have this information when you are actually trading the market and now doing historical work. It is quite easy to instruct your broker to give you the sequence of events. For example, you know that the day following an inside day is very important. You would ask your broker to watch this market and tell you if the high or low penetration occurred first.

The best way to learn how to plot a swing chart is to practice. At the end of each day you must ask yourself "what can happen tomorrow that will change my plot?"

Let's look at another example using weekly data on the D-Mark.

DATE	OPEN	HIGH	LOW	CLOSE
1/07	5510	5560	5460	5550
1/14	5555	5650 ↑	5510 ↑	5640
1/21	5625	5700 ↑	5405 ↓	5420
1/28	* inside 5455	5675 ↓	5455 ↑	5625
2/05	* 5610	5650 ↓	5420 ↓	5475
2/12	* 5495	5595 ↓	5495 ↑	5555
2/19	5540	5650 ↑	5450 ↓	5625



In the above example, the week of 1/21 was a reversal week with two plots. The swing chart was taken to the high of 5700 and then the moment that the prior week's low of 5510 was penetrated you placed a square around the high and turned the plot down. This action created a confirmed high at 5700. You knew that it was down, but until the close on Friday you did not know how low to take the plot. It turned out that you plotted it down to 5405 after Friday's close on 1/21. Since the plotting rules state that the only way you can take the chart back up is by penetrating the prior time period's high you could not take it up for some time. You can see that there were lower highs in the weeks of 1/28, 2/05, and 2/12. Consequently, you could not take the swing chart up during that period, nor could you take it down because it did not trade lower than the swing low plot at 5405. Therefore, all three weeks are no plot weeks, and dates noted on your chart but not plotted. It was only when the high of 5595 was penetrated during the week of 2/19 that you turned the chart up. The moment that 5595 was penetrated you knew that the chart had turned up and a square was placed around the 5405 low on your data record. This action created a confirmed low at 5405. You did not know how high to take the plot until the close Friday.

A good rule to follow once the swing chart turns up or down is to ask the following question the moment that it changes direction: What is the action required to turn it back in the other direction? Since you know what the prior time period's low price (or last confirmed low) was prior to the turn-up, you can easily make a note to remind you of the reversal price to turn the plot back down. It is my hope that this example will keep you from getting confused. Practice will be the only way to learn this thoroughly and correctly. An insert has been provided that summarizes the rules and definitions.

The above instructions are designed to teach anyone to plot price action by hand. In 1990, the author, working with an experienced programmer, Ed Kasanjian, was able to develop a proprietary program that plots swing charts.(1) This program uses color coding to describe the price action. For example, the plot is green until the down reversal price is hit, at which point the plot turns red. Inside periods show up as a side-ways yellow line. Two or 3 plot periods show the action in white. The charts presented in the remainder of this paper will use the charts from this program, although the color features will not be visible. This program allows shifting from a daily, weekly, monthly, quarterly or yearly bar chart to its equivalent swing chart in seconds.

THE PLOT ADVANTAGES

During 1991 after viewing hundreds of charts in various time frames using my new program, it became apparent that the yellow bars (inside periods) were very important precursors of future price action, particularly, in the monthly, quarterly and yearly charts. I have a daily file on the DJIA that starts in September, 1928, and continues up to the present day. It was also apparent that 2 and 3 plot periods were key to future price behavior. When working with Ed Kasanjian on the best way to plot the swing chart with a computer, I decided that the best way to view the swing highs and lows on the screen was to use a zero balance plot. Larry Williams was one of the first analysts to use the zero balance concept and it has been used for many years by Curtis Hesler of Professional Timing Service. The method varies depending upon how you select your pivot points. The theory of zero-balance is best understood by a thorough study of reference 7. For the purposes of this paper, I will provide the formula needed to compute it. The first requirement to compute this indicator is a method to define key highs and lows in the market. In my opinion, my swing chart plotting rules provide an excellent method to define pivot points. Once 6 pivot points have been established, you can compute two points out into the future using the following formula.

$$P8 = P6 + P5 - P3$$

For example, when the swing chart turns down, it creates a high pivot which immediately becomes a new point 6. Counting back from that point provides the values for points 5 and 3. In this way, as prices move from high to low and back to high, you develop a corresponding zero-balance plot of the price action that is two steps out in front of the actual price action. Consequently, when I call up a swing chart of a stock or index on the computer screen, the last eleven swings are shown on the upper left of the screen with the zero balance points computed next to the corresponding pivot point. In addition, the next two zero balance points are computed out into the future. Once the swing chart turns up or down, a plus or minus sign is added to the last confirmed high or low, therein telling you immediately if the price action is comparatively weak or strong relative to the zero balance points. The three step rule and last ditch setup, described in Reference 7 also work very well on the swing charts as will be shown later in this paper.

