Intraday Pivots Manual

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Abstract

Intraday Pivots are among the most powerful type of support and resistance indicator. This indicator is useful to any style of trader that analyzes a security on an intraday basis. These pivots are calculated over a period of minute time values and can be changed to any minute value. After thorough testing we have set the default time value to sixty minutes. For some traders, pivots alone are strong enough to base entries and exits upon. The standard pivot calculation method has shown the most correlation with price movement. Our pivots have five support levels, five resistance levels, and a central pivot, to provide more zones for extremely volatile periods.

1 Introduction

A pivot point is a tool used in technical analysis of financial markets. Pivots, as seen by traders, are predictive indicators of market movement. The main pivot is generally calculated by an average of the high, low, and close of the previous day. Auxiliary points of support and resistance are calculated by a function of the high and low. Although they are most commonly calculated based upon daily movement, significant correlation can be seen when calculated intraday. This is strange to find due to not a significant amount of traders (to my knowledge) utilizing intraday pivots. Daily pivots find significance due to many people using them. Intraday pivots find significance based on other reasons that are explored in this manual. Topics such as the calculation of pivots, their significance and use, and future developments are covered in this manual.

2 Calculation

Pivots can be calculated with many different formulas. Although only four types of calculations are included in the software, there are many more depicted in this manual. Future additions to the software will include other types of calculations.

2.1 Floor Pivots

First, it is important to show the many ways to weigh floor pivots. The most common is

$$p = \frac{h + l + c}{3}, \tag{1}$$

where p is the central pivot, h is the high, l is the low, and c is the close of the previous period. When considering daily pivots the previous period is obviously the previous day's price. In the case of intraday pivots that previous period can be any amount of time less than an entire trading day. What seems to be the most logical, and shown to be the best, is a period of sixty minutes. Other ways to calculate the central pivot include

$$p = \frac{o + h + l + c}{4}, \tag{2}$$

$$p = \frac{h + l + 2c}{4}, \tag{3}$$

$$p = \frac{2h + l + c}{4}, \tag{4}$$

and

$$p = \frac{h + 2l + c}{4}. \tag{5}$$

Here each variable is the same as before with the addition of o, which is the open. These are simply ways to weigh the central pivot. Equation two includes the open of the previous period and is used for cases when the opening price holds significance. Frequently the opening price is disregarded, but it can show significance when there is a notable change after hours. That being said, including the open in intraday pivot calculation is uncommon but really comes down to personal preference. Equation three weighs heavily on the close of the previous period. Close weighted calculation can adjust for periods that were generally flat in movement. The final two equations weigh on the high and low respectively. These are used when the previous period was trending. A positive trend will be better modeled by a high weighted calculation and similarly a negative trend by a low weighted calculation.

Now that pivot weighting has been covered, next is the calculation of auxiliary support and resistance points. Traditionally, three points of support and three points of resistance are used. That is sufficient for daily pivots, but for an intraday time frame price often moves out of the range of those points. The first three support and resistance points are the same for both standard and intraday pivots. The fourth and fifth are derived from the first three. Auxiliary support and resistance lines are calculated by

$$s_1 = 2p - h, \tag{6}$$

$$r_1 = 2p - l, \tag{7}$$

$$s_2 = p - h + l, \tag{8}$$

$$r_2 = p + h - l, \tag{9}$$

$$s_3 = l - 2(h - p), \tag{10}$$

$$r_3 = h + 2(p - l), \tag{11}$$

$$s_4 = p - 2(h - l), \tag{12}$$

$$r_4 = p + 2(h - l), \tag{13}$$

$$s_5 = 2(p + l) - 3h, \tag{14}$$

and

$$r_5 = 2(p + h) - 3l. \tag{15}$$

Each variable is the same as previously defined, with s and r representing support and resistance, respectively. These are all of the calculations associated with floor pivots. The use and significance of these points will be shown in a future section.

2.2 Fibonacci Pivots

Fibonacci pivot points are calculated based upon the golden ratio. The golden ratio has a large history in mathematics and dates back to 480 BC when Phidias constructed the Parthenon. It is related to the Fibonacci sequence such that as the values of the sequence increase the ratio of the terms approach the golden ratio. The ratio is defined as

$$\varphi = \frac{\sqrt{5} + 1}{2} = 1.6180339887\ldots. \tag{16}$$

It can be shown by the following simple proof.

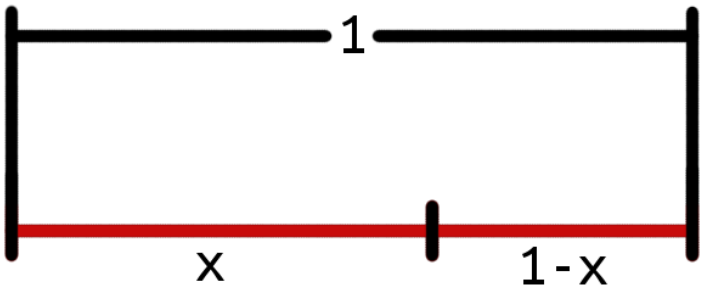

Figure 1: Cut for golden ratio.

Golden Ratio from Cuts. Take a line of unit length and cut it into two sections, one of length x and the other the remaining length, $1 - x$, as figure 1 shows. The ratio of the lengths should be equivalent so you obtain the relation

$$\frac{1}{x} = \frac{x}{1-x} \tag{17}$$

Next, simplify and set the equation to zero.

$$x^2 + x - 1 = 0 \tag{18}$$

Finally, solve for x with the quadratic formula.

$$\frac{-1 \pm \sqrt{5}}{2} = 0.6180339887\ldots, -1.6180339887\ldots \tag{19}$$

□

You may recognize that this is not exactly the same as how the golden ratio is defined above. In the proof the ratio is decreasing the size of the line, while in the Fibonacci sequence the values are increasing. None the less, they signify the same ratio.

Now to get back to how the pivots are calculated. Similar to the floor pivots, there is also a central pivot. The central pivot for Fibonacci pivots is calculated the same way that the floor pivot one is calculated. It can also be weighted the same ways for the same reasons. The difference between the Fibonacci and floor pivots, is the way the auxiliary support and resistance is calculated. To calculate Fibonacci auxiliary pivot points apply

$$s_1 = p - 0.3819660113(h - l), \tag{20}$$

$$r_1 = p + 0.3819660113(h - l), \tag{21}$$

$$s_2 = p - 0.6180339887(h - l), \tag{22}$$

$$r_2 = p + 0.6180339887(h - l), \tag{23}$$

$$s_3 = p - h + l, \tag{24}$$

$$r_3 = p + h - l, \tag{25}$$

$$s_4 = p - 1.38196601125(h - l), \tag{26}$$

$$r_4 = p + 1.38196601125(h - l), \tag{27}$$

$$s_5 = p - 1.6180339887(h - l), \tag{28}$$

and

$$r_5 = p + 1.6180339887(h - l). \tag{29}$$

This consists of simply multiplying the range by some variant of the golden ratio and adding to or subtracting from the central pivot.

2.3 Camarilla Pivots

Subsection to be added.

2.4 Woodie Pivots

Subsection to be added.

3 Use and Examples

Additional information to come.