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# Best Fibonacci Ratio and Shape Ratio for Winning Technical Analysis with 100 Years of Belief

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The Fibonacci Ratio is used by millions of forex and stock market traders every day. It is a mega popular tool in the trading world. If you do not know what the Fibonacci ratio is, here is the simple explanation. Fibonacci ratio is the ratio between two adjacent Fibonacci numbers. To have a feel about the Fibonacci ratios, here is the 21 Fibonacci numbers derived from the relationship:  $F_n = F_{n-1} + F_{n-2}$ .

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765,  
.....

Once the Fibonacci numbers are reasonably large, you can just pick up any two adjacent Fibonacci numbers above to derive the ratio. For example, we will find that  $4181/6765 = 0.618$  and  $1597/2584 = 0.618$ . Here 0.618 is called as the golden ratio. The golden ratio is one of the most important Fibonacci ratios. The rest of Fibonacci ratios are derived by using simple

mathematical relationship like inverse or square root or etc. Table below shows the list of Fibonacci ratios you can derive from the Golden ratio 0.618.

Type	Ratio	Calculation
Primary	0.618	$F_{n-1}/F_n$ of Fibonacci numbers
Primary	1.618	$F_n/F_{n-1}$ of Fibonacci numbers
Primary	0.786	$0.786 = \sqrt{0.618}$
Primary	1.272	$1.272 = \sqrt{1.618}$
Secondary	0.382	$0.382 = 0.618 * 0.618$
Secondary	2.618	$2.618 = 1.618 * 1.618$
Secondary	4.236	$4.236 = 1.618 * 1.618 * 1.618$
Secondary	6.854	$6.854 = 1.618 * 1.618 * 1.618 * 1.618$
Secondary	11.089	$11.089 = 1.618 * 1.618 * 1.618 * 1.618 * 1.618$
Secondary	0.500	$0.500 = 1.000 / 2.000$
Secondary	1.000	Unity
Secondary	2.000	Fibonacci Prime Number
Secondary	3.000	Fibonacci Prime Number
Secondary	5.000	Fibonacci Prime Number
Secondary	13.000	Fibonacci Prime Number
Secondary	1.414	$1.414 = \sqrt{2.000}$
Secondary	1.732	$1.732 = \sqrt{3.000}$
Secondary	2.236	$2.236 = \sqrt{5.000}$
Secondary	3.610	$3.610 = \sqrt{13.000}$
Secondary	3.142	$3.142 = \text{Pi} = \text{circumference} / \text{diameter of the circle}$

Figure 1: Fibonacci ratios and corresponding calculations to derive each ratio.

Then how do we use the Fibonacci ratio for our trading? Well, the common approach is to take the two price movements at each swing point and then just divide the latest price move Y2 by the previous price move Y1 (The ratio =  $Y2/Y1$ ) as shown in Figure 2. As shown in Figure 3 and Figure 4, many swing traders uses this Fibonacci retracement to pick up the potential reversal point for their trading. You can also use it for breakout trading too (i.e. Fibonacci expansion). Up to this point, I guess everyone is happy. Now the real question is “Why do the Fibonacci ratios work or not work for our trading?”. Does anyone have an answer to this question? You will find that the Fibonacci ratios are without doubt the popular topics in many major trading websites including [www.investopedia.com](http://www.investopedia.com) or [www.stockcharts.com](http://www.stockcharts.com). Even after reading dozens of articles about Fibonacci ratio, it is not easy to spot any rational behind the method. The best I can find is the reference to the Elliott Wave developed by Ralph Nelson Elliott in 1938. Then it became popular among trader. Being popular might be good rational. However, can we actually prove it scientifically? Have you asked these two questions:

**Question 1: Are all the Fibonacci ratios equally effective for our trading?**

**Question 2: Can we use some other ratios rather than the Fibonacci ratios for our trading?**

Whether you have asked these two questions or not, we will try to answer to these two question in this article because it would be helpful for our trading.

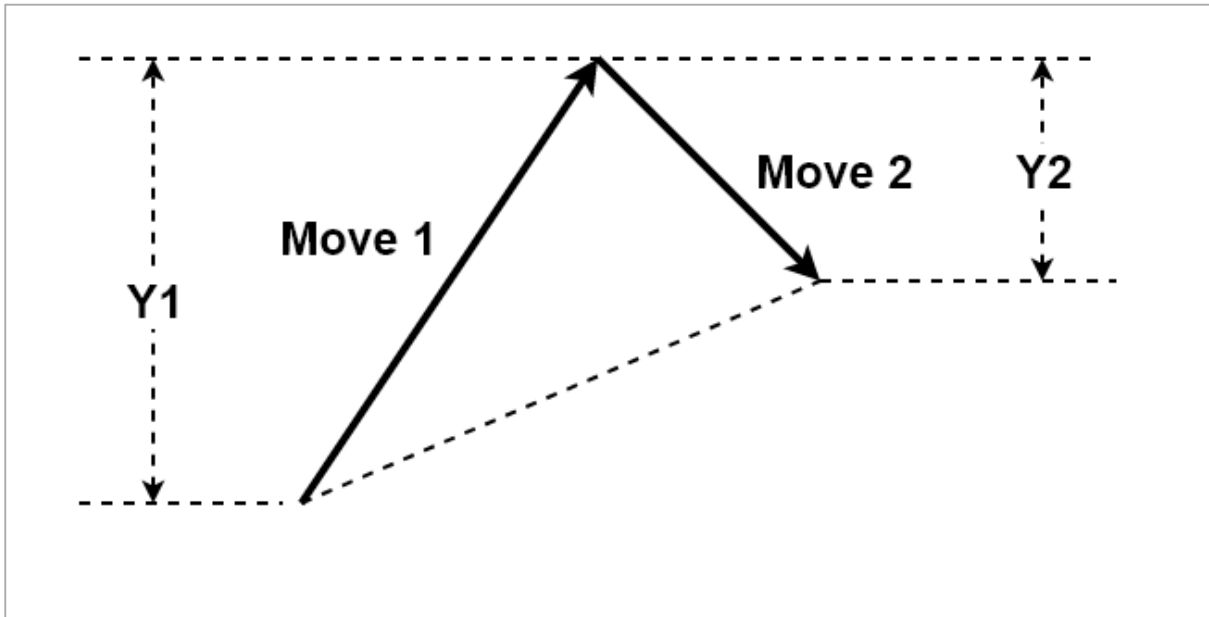


Figure 2: Basics of Fibonacci ratio measurement (or Shape ratio measurement).



Figure 3: Fibonacci Retracement drawn over daily EURUSD candlestick chart for bearish setup.

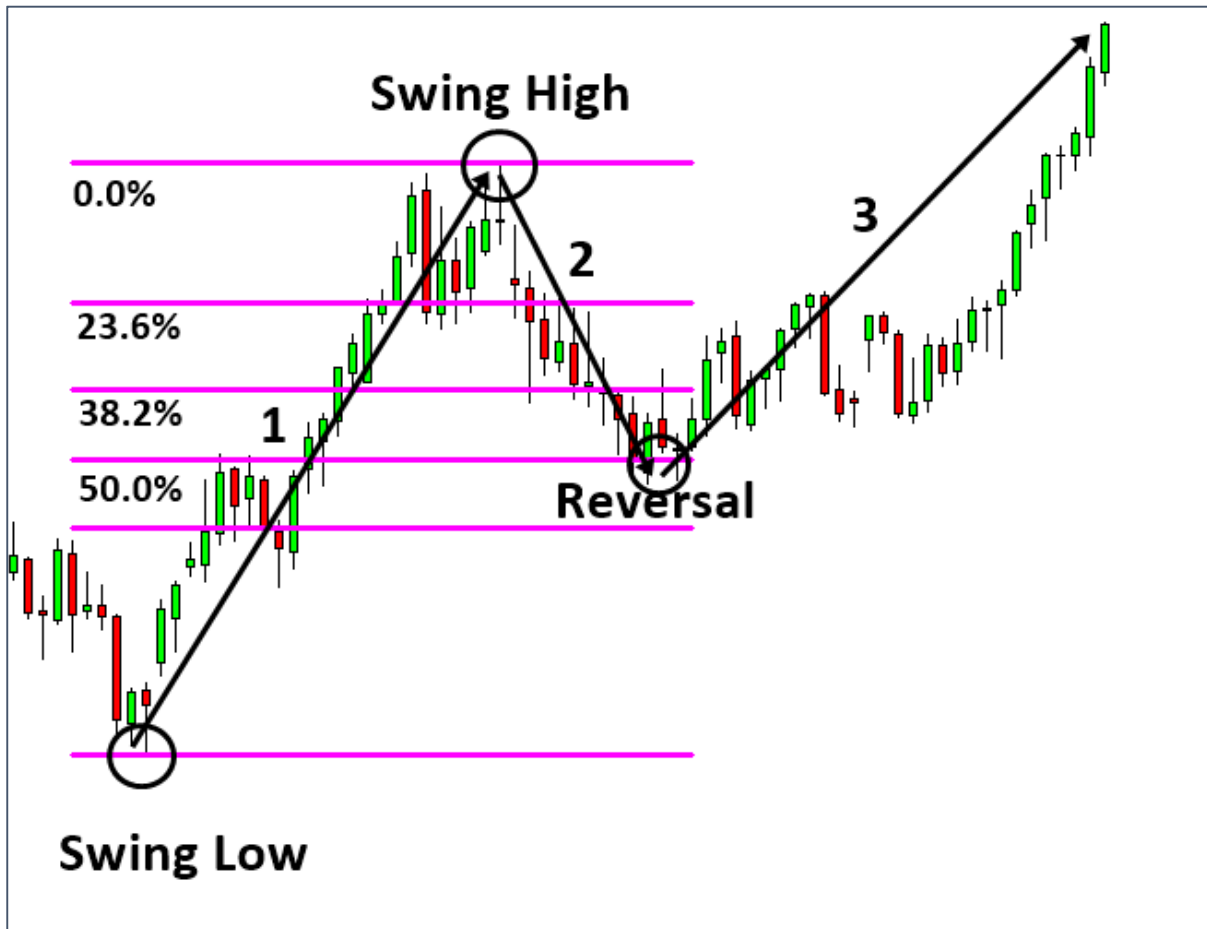


Figure 4: Fibonacci Retracement drawn over daily EURUSD candlestick chart for bullish setup.

Now, let us use the term Shape ratio to describe the ratio ( $Y2/Y1$ ) in Figure 2 because we can have the ratios other than the Fibonacci ratios like 0.222 or 0.888, etc. The Shape ratio ( $Y2/Y1$  in Figure 2) can be any ratios including both non-Fibonacci ratios and Fibonacci ratios. To measure the usefulness of each shape ratio, we can actually devise one simple index using the following equation:

**Index = number of a particular Shape ratio ( $Y2/Y1$ ) / number of swing highs and swing lows in the price series.**

We are counting number of a particular shape ratio in regards to the potential swing highs and swing lows in the price series. For example, if we have 50 times 0.618 ratio among 200 swing highs and swing lows in EURUSD daily timeframe, then the index will be 0.25 (or 25%). If the shape ratio is not significant, then we will have a poor index value. If the index is small,



then it means that the ratio will not provide us a good trading opportunity. If the shape ratio is significant then we will have a strong index value. This means that the shape ratio will provide us good trading opportunities.

Have you noticed that the index equation above is in fact quite similar to something? Yes, the index with above formula is identical to the “Equilibrium Fractal Wave (EFW) index” as described in the book “Financial Trading with Five Regularities of Nature: Scientific guide to Price Action and Pattern Trading”. The original equation looks like this in the book:

**Equilibrium Fractal Wave (EFW) Index = number of the particular shape of equilibrium fractal wave (the shape ratio =  $Y2/Y1$ ) / number of peaks and troughs in the price series.**

However, the name does not really matter. Two equations are the same. The valid theory or concept can be valid from many different angles. Anyway, what is important is that the EFW index will describe the significance of each shape ratio for your trading whether they are Fibonacci ratio or non-Fibonacci ratios.

Now, let us test the EFW index to answer the two questions using EURUSD Daily timeframe. In this testing, I am using around 10 Years history data for EURUSD in daily timeframe around 2200 candle bars. For this task, we will be selecting three non-Fibonacci ratios and three Fibonacci ratios for comparison. Therefore, the shape ratios in our testing include the typical Fibonacci ratios like 0.382, 0.500 and 0.618. The non-Fibonacci ratios include 0.250, 0.570 and 0.680. Please note that these ratios 0.250, 0.570 and 0.680 are not Fibonacci ratios. Considering that the strong belief on the Fibonacci ratio was held around 100 years in the trading world, our result is very interesting. In general, the Golden ratio 0.618 has the EFW index of 0.274 (or 27.4%). This means that we have nearly 2.7 trading opportunity with the Golden ratio for every 10 peaks and troughs in our chart. Golden ratio looks significant as well as the other two Fibonacci ratios. The Shape ratio 0.382 is least significant among the three Fibonacci ratios only yielding the EFW index 0.261 (or 26.1%). Now let us have a look at the non-Fibonacci ratios. The shape ratio 0.250 has only the EFW index 0.135 (13.5%). This is

insignificant. However, the shape ratio 0.570 and 0.680 respectively scored the EFW index 0.278 and 0.291. In fact, both the shape ratio 0.570 and 0.680 have higher the EFW index than the Golden ratio 0.618. This is an interesting observation. This means that we can make slightly better edge using the Shape ratio 0.680 than the Golden ratio 0.618. Now we can answer to the two question above.

Question 1: Are all the Fibonacci ratios equally effective for our trading?

Answer 1: No, different Fibonacci ratio will perform differently for our trading. In general, using the Fibonacci ratio is not a bad choice. However, some Fibonacci ratio can perform better than the other Fibonacci ratio.

Question 2: Can we use some other ratios rather than the Fibonacci ratios for our trading?

Answer 2: Yes, you can search better opportunity with other ratios comparing to the Fibonacci ratios.

From my experience, the results are very specific to the financial instruments. It means that you cannot assume that every financial instrument will behave the same. Therefore, if possible, you should conduct the similar experiments for the financial instruments you want to trade. When you have the results, you can fine tuning your trading strategy with the EFW index. Of course, you can gain the better profit. In the world of trading, the scientific mind set can help you to win. If you want to learn the Price Action and Pattern Trading in the scientific way, we do really recommend reading the book “Financial Trading with Five Regularities of Nature: Scientific guide to Price Action and Pattern Trading”. The book will provide new breakthrough in the trading science. You will get to learn one unified trading framework and practical trading guide never told in other books.

Shape Ratio	Type	EFW Index	Number of identical Shape ratio	Total Peaks and Troughs
0.382	Fibonacci ratio	0.261	60	230
0.500	Fibonacci ratio	0.274	63	230
0.618	Fibonacci ratio	0.274	63	230
0.250	Non Fibonacci ratio	0.135	31	230
0.570	Non Fibonacci ratio	0.278	64	230
0.680	Non Fibonacci ratio	0.291	67	230
	<b>Sum</b>	1.513	348	
	<b>Average</b>	0.252	58	230
	<b>Standard deviation</b>	0.058	13.42	0

Figure 5: EFW Index for six shape ratios including three Fibonacci ratios and three non-Fibonacci ratios.