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PROTECTIVE STOPS
Should you use them? 12

Dr Mircea Dologa
THE MISSING LINK
Between time & price 18

MOVING AVERAGES
Simple is better 28

CURRENCY MARKETS
Here's how to beat them 32

OSCILLATORS, SMOOTHED
Swing trading, part 5 38

INTERVIEW
Vikram Murarka on forex forecasting 44

REVIEW
- *TradingMarkets.com Live Screener*

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Waves & Boxes

The Missing Link

Part 1

The relationship between time and price has a direct influence on trading profitability. Here's a look at how you can gain an insight by looking at the euro and the Romanian leu.

As traders progress along their learning curve, they begin to clearly observe the influence of the time/price relation in identifying the optimal trading setup. In spite of this, some traders — novices and experienced — always start the learning process with only price tools and their corresponding indicators, that is, classic technical analysis. Sooner or later, the successful trader will reach an advanced stage where learning the importance of time and its usefulness becomes a priority in the quest to further develop and acquire the much-sought-after professional trading techniques.

THE EVOLUTION OF A TRADER

In the early stages of becoming a trader, we are all motivated to learn tons of techniques and indicators in order to perform the most profitable trades. We quickly observe that if the right approach isn't selected, we are in great danger of losing our trading capital.

Over time, I began to realize that studying and applying Elliott waves, Gann methodology, and mapping multiple time frames (top-down analysis) are a prelude to any final decision-making. Once this is done, the next step, which is the detailed study of the specific market you are trading, comes naturally. You can then identify the optimal time frame setup that works for you, one that consists of the most efficient elements of modern technical analysis.

AVA KAKEDA

by Mircea Dologa

ESTABLISHING THE TRADING CONTEXT

Before I describe my time & price technique, I will briefly present and revisit some of the basic elements that contribute to its performance.

In spite of the so-called subjective labeling that many traders give to Elliott waves, I have been successfully using them for more than 20 years. Many traders misunderstand the usage of these waves mainly because of the lack of a probabilistic approach. Without probability, there wouldn't be a successful trading technique — classic *or* modern.

Your profitability is influenced and coordinated by the time & price relationship. You cannot label any type of pattern without first verifying several elements:

- Where is the market coming from?
- Where is the market going?
- What would be the most probable terminal key level of the current swing (trend) where time meets price?
- What is the most probable tendency, if any?
- If an existing sideways behavior is developing, what is its energy-restoring potential?
- If an existent trend is ongoing, where is the kinetic energy coming from? Can it be quantified?
- Is the market in a classic, extended, or failure mode, or on the contrary, is it in an embryonic state?
- What kind of technical tools can we use to get an optimal trading setup?

From an educational point of view, I will present two classic examples. In this first article of my series, I will discuss the euro vs. the Romanian leu (EUR/RON) in hindsight. In part 2, I will look at the gold continuous futures contract while it is developing in real time.

FIGURE 1: TIME AND PRICE RELATIONSHIP. Notice how W(4) retraced 33.3% of W(3) to the 4.0564 level.

The chart in Figure 1 illustrates the EUR/RON currency pair on the weekly time frame. I selected this example to establish a close-to-ideal relationship between time & price. I will focus the study on just the fourth wave, W(4).

As you can see in Figure 1, the area occupied by W(4) is mapped with the help of time & price parameters. With respect to price, W(4) retraced 33.3% of W(3) to the 4.0564 level. With respect to time, I have applied the *alternation principle*, which, from the classical point of view, states that the duration of W(4) is calculated based on the duration of W(2) wave, using the following formula:

Time W(4) = *n* x Time W(2)

The *n* coefficient can take, more often than not, the following values: 1, 2, 3, 4… In this case, the value of *n* is 4.333. Very rarely is the value of *n* less than 1.0.

You should understand and be prepared for the alternation principle in your daily trading. The five-rule parameters pertain to the two corrective waves within an impulsive pattern: W(4) and W(2). Note that this principle implies that one valid element of the rules should be present. The alternation principle rules are:

- ***Price*:** Measure the distance, in price or in points, and compare the values of each corrective wave; oftentimes, W(2) retraces more than W(4).
- ***Time:*** Evaluate the duration of each corrective wave; count the corresponding bars on the time frame you are using. For example, more often than not, W(4) lasts longer than W(2) [$n > 1$]. Very rarely is the duration of W(4) less than that of W(2) [$n < 1$].
- ***Severity*:** Compare the Fibonacci price retracement ratios of the two waves. Typically, W(2) retraces farther than the W(4).
- ***Intricacy*:** Evaluate the number of subdivisions in both waves. Usually, W(4) will have more subdivisions than W(2).
- ***Construction* (*wave structure*):** Observe the degree of structural complexity (*mono/polywave*) of the wave. Usually, W(4) has a higher degree of complexity than W(2).

Identifying and labeling the most probable Elliott waves comes down to choosing the optimal time & price tools.

The chart in Figure 2 illustrates the same EUR/RON currency pair on the weekly time frame. As you can see from the chart, the span of W(4) wave is mapped by using the price retracement parameter [zero to 33.3% of W(3)].

On the time side, I applied the 28-bar multiplier, which is the duration of W(2), to forecast the duration of W(4). Thus, I calculated that W(4) will terminate after 121 corrective bars, which fully complies with the formula:

4.333 x W(2) duration

The value of n = 4.333 corresponds to one of the Charles Dow ratios, which are typically known as thirds, that is, 0.333, 0.666, 1.333, 1.666, 2.333, 2.666, and so on. The chart in Figure 2 illustrates an interesting observation between the relationship of

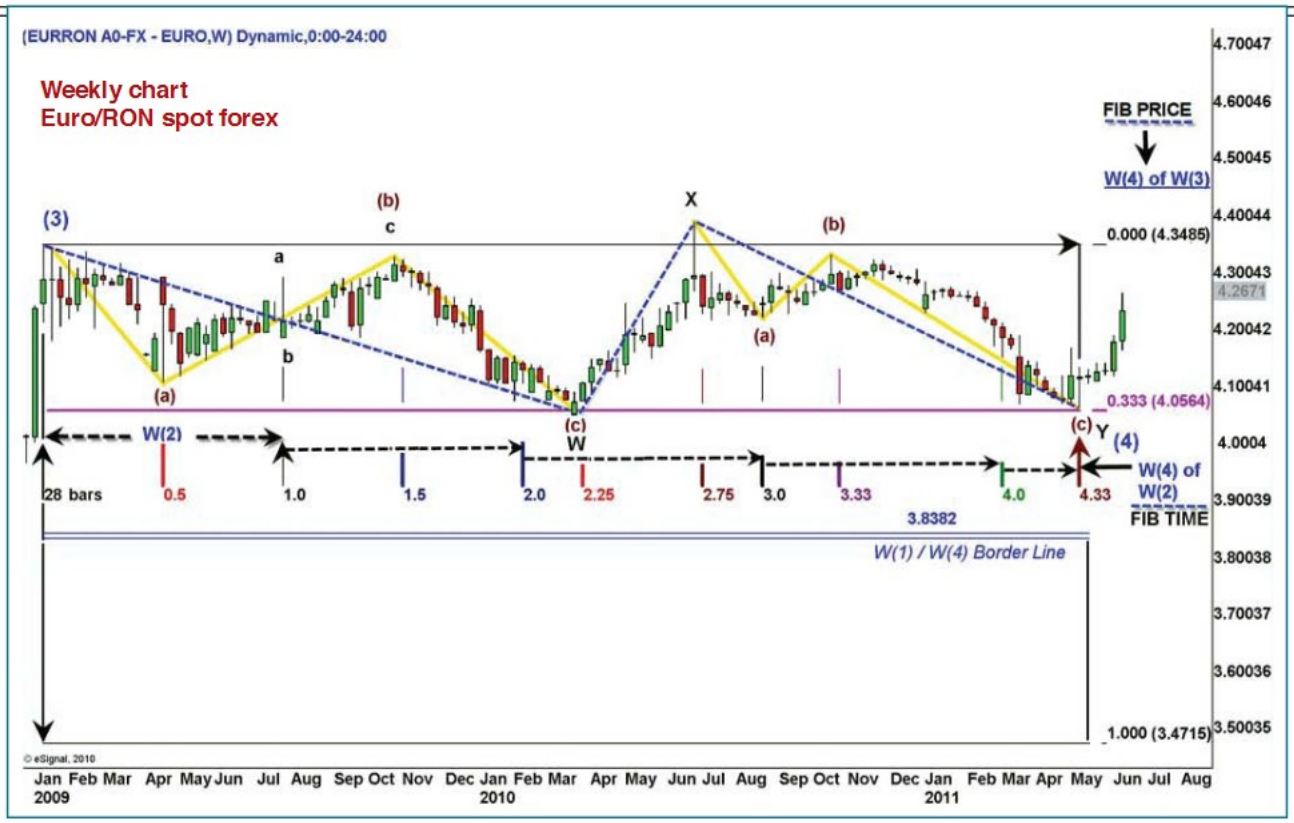


FIGURE 2: PRICE RETRACEMENTS. Here, the 28-bar multiplier, which is the duration of W(2), is used to forecast the duration of W(4).

W(4) and W(2) with respect to time — the terminations of most of the lower-degree waves of the double three W(4) complex wave (labeled W-X-Y) occur at a Fibonacci, Gann, or Charles Dow ratio threshold, within the duration of W(4).

All these observations were possible through the use of the alternation principle, that is, through the time formula with the specific multiplier. Thus, we can establish the following time ratios pertaining to the adequate subwaves of W(4):

- Subwave (**a**): **W: W(4)** consists of 14 bars, terminates at the 0.5 multiplier location, and corresponds to a Gann ratio, on the 4.333 x W(2) scale
- Subwave **a**: (**b**): W: **W(4)** consists of 14 bars, terminates at the 1.0 multiplier location, and corresponds to a Gann (Fibonacci) ratio on the 4.333 x W(2) scale
- Subwave **b**: (**b**): W: **W(4)** has 14 bars, terminates at the 1.0 multiplier location, corresponds to a Gann (Fibonacci) ratio on the 4.333 x W(2) scale
- Subwave **c**: (**b**): W: **W(4)** has 13 bars, terminates at the 1.5 multiplier location, and corresponds to a Gann ratio [error margin is (+ 1) bar] on the 4.333 x W(2) scale
- Subwave (**c**): W: **W(4)** has 21 bars [(0.50 + 0.25) or 0.75 of 28 bars], terminates at the 2.25 multiplier location, and corresponds to a Gann ratio on the 4.333 x W(2) scale
- Subwave **X**: **W(4)** has 14 bars [(2.75 – 2.25) or 0.5 of 28 bars], terminates at the 2.75 multiplier location, and corresponds to a Gann ratio [error margin is (+ 1) bar] on the 4.333 x W(2) scale
- Subwave (**a**): **Y**: **W(4)** has seven bars [(3.00 – 2.75) or 0.25 of 28 bars], terminates at the 3.0 multiplier location, and corresponds to a Gann (Fibonacci) ratio, on the 4.333 x W(2) scale
- Subwave (**b**): **Y**: **W(4)** has nine bars [(3.333 – 3.00) or 0.333 of 28 bars], terminates at the 3.333 multiplier location, and corresponds to a Charles Dow ratio [error margin is (+ 1) bar], on the 4.333 x W(2) scale
- Subwave (**c**): **Y**: **W(4)** has 28 bars [(4.333 – 3.333) or 1.0 of 28 bars], terminates at the 4.333 multiplier *terminal* location, and corresponds to a Charles Dow ratio, on the 4.333 x W(2) scale.

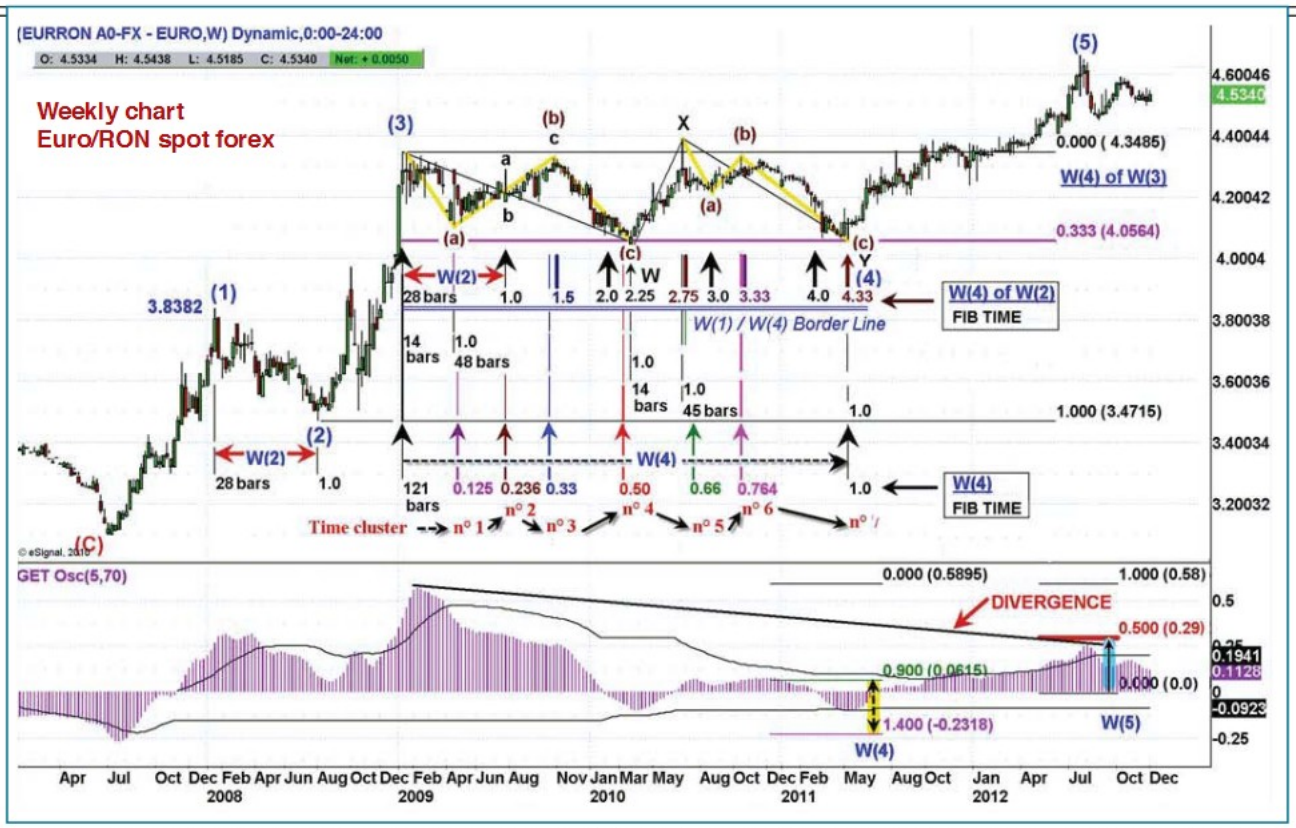


FIGURE 3: ELLIOTT WAVE SETUP. Most reversals take place at the time & price confluences. Identifying and labeling the most probable Elliott waves is a matter of choosing the optimal time & price tools.

Figure 3 completes the Elliott W(4) wave setup by adding some interesting information. Here are my observations and interpretations of the price chart and the oscillator in the subchart.

- The Elliott subwave count of W(4) with its three wave subdivisions, a: (a) to W: W(4)
- The time relation of W(4) to W(2), which reveals the terminal levels of most of the lower-degree waves of the double three W(4) complex wave (labeled W-X-Y)
- The W(4)/W(1) overlapping border line is located at the 3.8382 key level. It is important to continuously monitor the distance between price and this overlapping border line. It reveals important information regarding the potential development of W(4) wave, which could unveil the future development of W(5), the terminal wave, and implicitly the termination of the ascending impulsive pattern. The bigger the W(4) retracement, the weaker the W(5) wave will be in its development.
- The time relationship within the W(4) wave, considered to be equal to a ratio of 1.0 but containing 121 bars, in hindsight, reveals the terminal levels of most of the lower-degree waves of the double three W(4) complex wave (W-X-Y) and the multiple time clusters. Thus, the following time ratios pertain to the W(4) wave:
  - Subwave **(a)**: **W**: **W(4)** has 14 bars, terminates at the 0.125 multiplier location, and corresponds to a Gann ratio [error margin is (-1) bar], on the 121 bar scale.
  - Subwave **a**: **(b)**: **W**: **W(4)** has 14 bars, terminates at the 0.236 multiplier location, and corresponds to a Fibonacci ratio, on the 121 bar scale.
  - Subwave **b**: **(b)**: **W**: **W(4)** has 14 bars, terminates at the 0.236 multiplier location, and corresponds to a Fibonacci ratio, on the 121 bar scale
  - Subwave **c**: **(b)**: **W**: **W(4)** has 13 bars, terminates at the 0.33 multiplier location, and corresponds to a Charles Dow ratio [error margin is (- 2) bars], on the 121 bar scale
  - Subwave **(c)**: **W**: **W(4)** has 21 bars, terminates at the0.50 multiplier location, and corresponds to a Gann ratio [error margin is (-2) bars], on the 121 bar scale
  - Subwave **X**: **W(4)** has 14 bars, terminates at the 0.66 multiplier location, and corresponds to a Charles Dow ratio [error margin is (+2) bars], on the 121 bar scale
  - Subwave **(b)**: **Y**: **W(4)** has nine bars, terminates at the 0.764 multiplier location, and corresponds to a Fibonacci ratio, on the 121 bar scale
  - Subwave **(c)**: **Y**: **W(4)** has 28 bars, terminates at the 1.0 multiplier *terminal* location, and corresponds to a Gann (Fibonacci) ratio, on the 121 bar scale.
- The **time clusters** within W(4), observed in hindsight, between the ratio locations of 4.333 x W(2) scale and the 121-bar scale, were developed in almost every W(4) subwave termination:
  - Time cluster n° 1 at the termination of (a): W: W(4),
  - Time cluster n° 2 at the termination of a: (b): W: W(4),
  - Time cluster n° 3 at the termination of (b): W: W(4),
  - Time cluster n° 4 at the termination of (c): W: W(4),

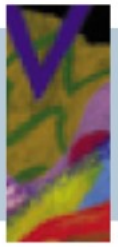
FIGURE 4: GANN BOXES. The market retraced to the 33.33% price threshold and remained in the 0 to 33.33% price zone for the duration of the entire W(4) wave.

- Time cluster n° 5 at the termination of X: W(4),
- Time cluster n° 6 at the termination of (b): Y: W(4),
- Time cluster n° 7 at the termination of (c): Y: W(4)

- The trending indicator–OSC (5, 70), observed in hindsight, is an indispensable tool when it comes to practicing the application of Elliott waves.

The OSC indicator is similar to the MACD in that it measures the area between two moving averages. It is valuable in defining and labeling the Elliott waves, in spite of its lagging nature. We observed, on the chart of Figure 3, the development of the W(4) wave, which fluctuated in the 0.90–1.40 zone of the OSC (5, 70). Moreover, the classic divergence between the indicator and price movement from W(3) to W(5) is obvious here.

Note that most of the reversals take place at the time & price confluences. In order to identify and label the most probable Elliott waves, it all comes down to choosing the optimal time & price tools. The key is to closely monitor the Fibonacci, Gann, or Charles Dow ratios progressively, from their initial point (0.03125, 0.0625, 0.09375, 0.125, 0.146, and so on) to the most extended ones (2.618, 3.666, 4.236, 5.0, 6.85, 7.0, and so on). If a ratio is overcome, consider the next one.



The Gann angles efficiently illustrate the time & price relationship on the chart in Figure 4.

ORGANIZATION WITHIN CHAOS

Most Gann adepts will agree that his main credo regarding the time & price relationship plays a big role in identifying market turns. The ideal Gann tool to use would be the box, but to successfully use the box, you need to go through the difficult task of calibrating its height (price parameter) and length (the duration or time parameter). For more details on applying Gann techniques, I suggest you study Michael Jenkins' recent book, *Square The Range Trading System*.

The weekly chart in Figure 4 illustrates a rectangular Gann box, drawn in hindsight. It considers the W(4) existing space (also called the vital wave space) in the price zone between the termination of W(3) at the 4.3485 level and the termination of W(2) at the 3.4715 level. Time-wise, the W(4) wave is developing on the 121 bar scale.

The classic approach of drawing Gann boxes consists of choosing the adequate time & price parameters (duration interval and height), and then dividing them in quarters and halves. You can also select thirds or any Fibonacci ratios you feel the market adheres to. In the chart in Figure 4 the market retraced to the 33.33% price threshold and remained in the 0%–33.33% price zone for the duration of the entire W(4) wave. The market flow almost tested the 50% time threshold, exceeding it by two bars.

The Gann angles efficiently illustrate the time & price relationship on the chart in Figure 4. You can easily see that after the market flow has tested the steep 1x4 and 1x2 angles several times, it climbed to the decisive 1x1 angle. Once price broke out of this angle, the market flow remained above it,

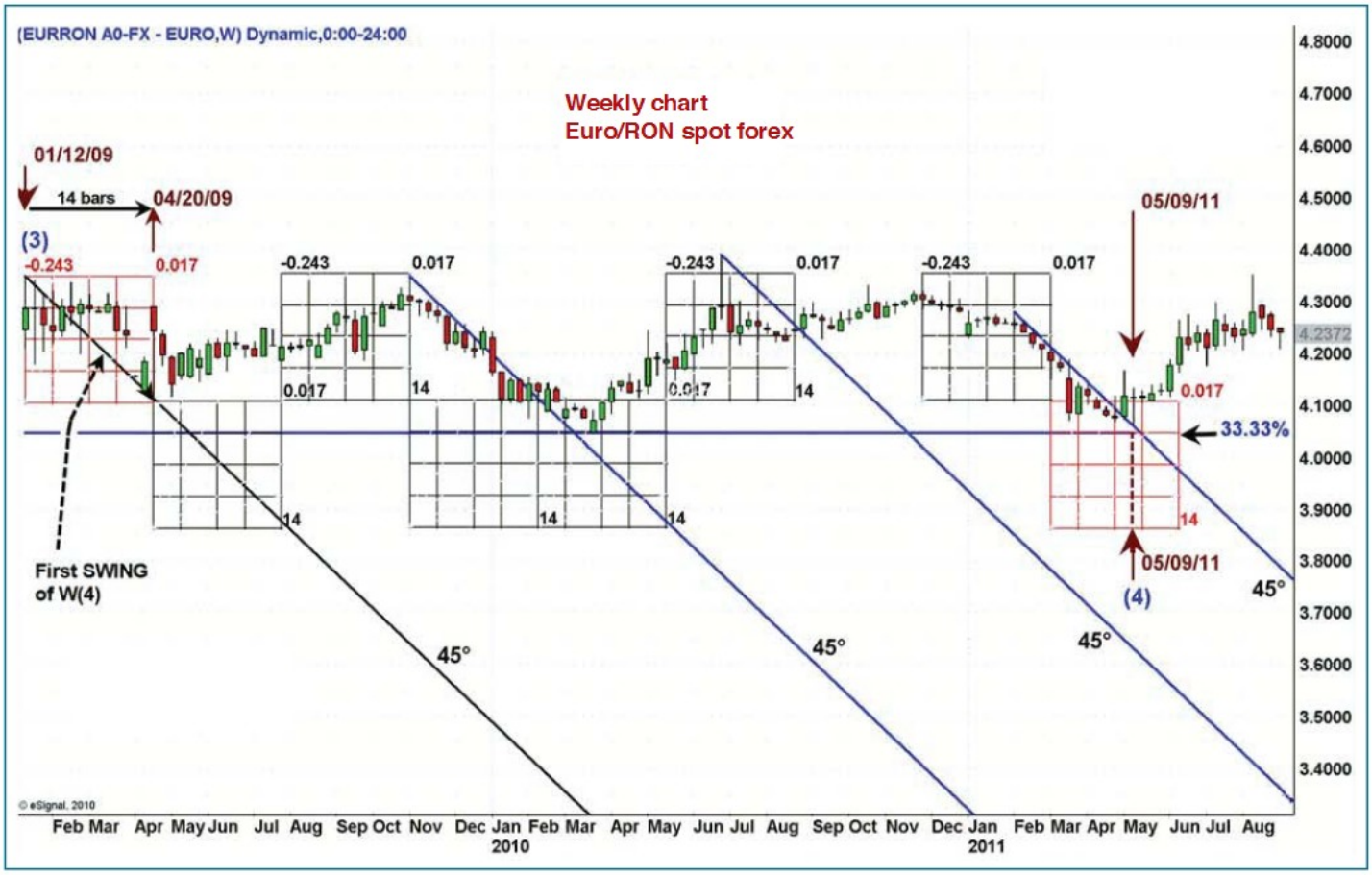


FIGURE 5: TURNING POINTS. Most of the reversals take place at the time & price confluences governed by Gann boxes or by the 45-degree geometric angle.

thus revealing the strength of the market, by staying above the 33.33% threshold of the W(4) wave space.

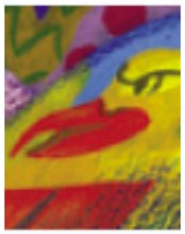
The shallow 4x1 angle is of lesser importance on this specific timeframe. Instead, the angle illustrated by the TL-1/3 trendline — created by joining the termination of W(3) and W(4) — becomes the diagonal of the rectangular space of W(4) wave. It plays an important role here, since it becomes a symmetry axis within the development zone of W(4) wave.

The Gann box does a good job of revealing the degree of freedom of W(4) wave, in hindsight. But how can this be studied in real time, while the market is fluctuating in a chaotic manner within the rectangular space?

To answer this question, I have used a Gann box and its multiples, out of the first swing of the W(4) wave associated with the use of the 45-degree geometric angle. The Gann boxes (especially the 144) with the 45-degree angles, both drawn by hand on millimeter paper, are the specialty of Dawn Bolton-Smith, the matriarch of technical analysis and a life member of the Australian Technical Analysts Association (ATAA in Sydney), who, in spite of being in her 80s, is still doing her daily market analysis.

The first Gann box in Figure 5 uses a diagonal size and angle value that is equal to the trendline of W(4)'s first subwave swing. Its angle value coincides with that of the 45-degree geometric angle. I then multiplied this Gann box size to better describe the market flow. I associated it with the drawings of the parallel 45-degree geometric angles originating at an extreme pivot high or a low. These boxes harmonically govern the entire area occupied by W(4). Moreover, every time there is a change in trend, the 45-degree angles act as a guide. The entire W(4) wave terminates at the eighth drawn Gann box with the following inner coordinates: 0.25 of price, and 0.666 of time.

Gann's main credo regarding the time & price relationship plays a big role in identifying market turns.



FINDING THE TURNING POINTS

Most of the reversals in Figures 4 and 5 take place at the time & price confluences governed by the Gann boxes or by the 45-degree geometric angle. The time & price relationship practiced in real time, with its array of boxes drawn using the first swing, illustrates its efficiency in revealing a market turn. Once again, you see the importance of using a systematic approach, which consists of strictly monitoring the developing process of the confluences. Once again, if a box or an angle is overcome, just draw and consider the next one.

Take the time to understand the relationship between time & price and the likelihood of price meeting confluence points. In the second part of this article series, I will show you how the time & price relationship can be seen developing in real time.

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