Risk Disclosure Statement

The risk of loss in trading commodity futures contracts can be substantial. You should therefore carefully consider whether such trading is suitable for you in light of your financial condition. You may sustain a total loss of the initial margin funds and any additional funds that you deposit with your broker to establish or maintain a position in the commodity futures market. Past performance is not indicative of future results. We recommend that you learn more from the Commodity Futures Trading Commission (CFTC) or the National Futures Association.

Trading Securities:

In considering whether to trade in securities or enter into any such transaction, you should be aware that trading in securities can be extremely risky. You should be prepared to lose all of the funds used for trading in securities. You should not fund your security trading activities with retirement savings, emergency funds or funds set aside for purposes such as education or home ownership. Trading in securities can also lead to large and immediate financial losses. Trading in securities requires knowledge of the securities markets. Trading in securities require in-depth knowledge of the securities markets and trading techniques and strategies. In attempting to profit through trading in securities, you must compete with professional, licensed traders employed by securities companies. You should have the appropriate experience before engaging in the trading of securities. All losses are your responsibility.

Hypothetical Risk Disclosure Statement:

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One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of hypothetical performance results and all of which can adversely affect actual trading results."
Summary of Manual

- **Warning:** This is not the Guide to Fractal Finance for MotiveWave.
- This manual is intended to supplement the Guide Book. Read the Guide Book first!
- This manual contains examples of using Fractal Finance on a chart.
- Starting values for the various indicators are included.
- While the examples use the E-mini S&P 500 contract, the general settings will apply to most markets.
- It is suggested that you start with these settings and modify to your needs.
- This manual is not intended to be a substitute for the MotiveWave guide. It is expected that the user already has a good working knowledge of MotiveWave features.
Examples Presented

The examples presented in this manual utilize the Fractal Finance indicators on a chart of the E-mini S&P 500 futures contract. The settings for these indicators are intended to be examples only. The user is not bound by these settings and is encouraged to make modifications for their needs and different markets. The primary purpose of this manual is to demonstrate some working examples of the indicators for trading and to provide a quick starting point for inputs.

The following indicators and sample settings are included in this manual:

1) The Fractal Predictor – the data inputs to get started are included in addition to the settings for a smoothed Fractal Predictor used in combination with the Fractal Predictor. These two can be used to replace a moving average crossover system and eliminate lag.

2) Volume – The predictor is placed on the volume bars that are easily selected from the chart. Sample settings are provided to project a prediction on the volume bars. This method can be applied to other similar chart settings.

3) RSI – The Fractal Predictor is placed on an RSI indicator with sample settings. This example can be duplicated with any other MotiveWave indicator.

4) Momentum - The Fractal Predictor is placed on a Momentum indicator with sample settings. This example can be duplicated with any other MotiveWave indicator.

5) Fractal Wave Oscillator – This indicator is included in a separate screen below the chart. The settings for setting up the indicator are provided as well as instructions for use.

6) Fractal Forward - This indicator is included in a separate screen below the chart. The settings for setting up the indicator are provided as well as instructions for use.

7) Fractal Dimension – This indicator is found in the Fractal Basics section and measures the efficiency of the predictor. Normally it is used to determine when a market is acting randomly or is trending. If used with the other indicators, it can act as a trade filter.

8) Trade Example – A simple trading example will be explained using the Fractal Predictor. Many other combinations are possible.
Example 1 – The Fractal Predictor (1 Step Ahead)
The Fractal Predictor

The Fractal Predictor is the heart of the toolkit. It is important to understand how this works so that you can use the other indicators. The first step is to provide the input settings that will provide a good prediction. A good set of starting ‘General’ Inputs is provided in the screenshot above. Notice that the price input is the weighted price. You can use any price that you want, but this selection tends to work well across the board. It is also possible to use this with two other predictors that are set to the high and the low price. This will effectively create a high/low channel.

In this example we are only using one predictor. The Lag input is set to (5) and determines the maximum lag in the lag plot that will be used to make a forecast. Because the lag is automatically selected at this number or less, (5) usually works well for most markets.

The Fractal Length is set to (2) and is used to determine the number of data points used to calculate the fractal dimension of the lag plot. The lower number will use the minimum amount of points and use the most recent fractal dimension data for the prediction.

The FDAvg smooths the fractal dimension. This is set to (1) because it is not generally necessary to have a long smoothing period for the prediction to work properly. This number can be increased when plotting the fractal dimension of the market.

The steps are the number of steps ahead that are predicted. It is important to understand that the number (1) represents the forecast for the present bar as soon as the open occurs. In other words, it is the price that is predicted, when the bar stops ticking and is on the last tick. For example, if using the close price, the close of the bar is predicted immediately at the open of the bar. If using a high price, the high of the bar will be predicted as soon as the bar opens. In this example (1) is selected and “usually” provides a more accurate prediction.

The smoothing is set to (1) which means the predictor is not smoothed in this case. If the smoothing input is increased, the predictor will be smoothed over the periods that are entered.

Shift Plot is set to (0). If the input is increased the predictor will shift to match the number. This may be useful if the user is predicting (2) steps and would like to shift the prediction (1) bar to the right. A number (3) will shift the prediction (2) bars to the right and so on.

The ‘Display’ is used by MotiveWave to select color and indicator display specifics. These can be changed to accommodate the user.
Example 2 – Fractal Predictor (2 Steps)

- Here is an example of a (2) Step prediction. The Shift Plot is left at (0).
Example 3 – Fractal Predictor Options

Fractal Finance Predictor study - Can be used as an overlay on price or another study. Coded by Brian Smith
www.equityboost.com

General Options

Graph: Price Graph
Visibility: All
Bar Size: 30 min

Use Chart Bar Size

- Show Legend
- Show Values In Legend
- Bar Updates

- Underlay
- Use Real Values

Update Apply Remove Defaults Cancel
Fractal Predictor Options

The options tab in MotiveWave allows the user to make changes to the way that the indicator is presented. In the example (3) above, all of the boxes are checked. The one that is most important, is the box labeled ‘Bar Updates’. This box should be checked for every indicator if the user would like to see real-time updates for each bar. If this box is not selected, the predictor and any other indicator, will not update. To reiterate, the indicator will “NOT” update with the chart if this box is not checked.
Example 4 – Two Predictors (1 Chart)

- Here is a (1) step ahead predictor coupled with a (2) step ahead, smoothed predictor. The smoothing input is 6 data points. This combination acts as a predictive moving average cross over replacement. Simply use the blue line as a bullish or bearish trigger for the trade. The yellow predictor can be smoothed even further to eliminate false signals.
Example 5 – Predictor on Volume

- Here is a (1) step ahead prediction of the volume on the chart. You can see that Volume is specified in the Price input. This can be duplicated with other Price selections.
Example 6 – Predictor on RSI

- Here is a (1) step ahead prediction of the RSI. You can see the ‘General Inputs’ here. The RSI was added to the chart first, then the Fractal Predictor was selected. The Price option was changed accordingly.
Example 7 – Predictor on RSI

- Here is a (1) step ahead prediction of the RSI. You can see the ‘Options Inputs’ here. The RSI was added to the chart first, then the Fractal Predictor was selected. The Price option was changed accordingly.
Example 8 – Predictor on Momentum

- Here is a (2) step ahead prediction of the Momentum. You can see the ‘General Inputs’ here. Notice the Shift plot has been raised to (1) to match the (2) step input. The Momentum was added to the chart first, then the Fractal Predictor was selected. The Price option was changed accordingly. The ‘Options Inputs’ are the same as those used for the RSI.
Example 9 – Fractal Wave Oscillator

- The ‘General Inputs’ for the Fractal Wave Oscillator are displayed below. In this example, a (2) step prediction is used. The smoothed oscillator is the light blue line. The trigger line is in yellow. The indicator is bullish when the yellow line is above the blue line. The indicator is bearish when the yellow line is below the blue line.
Example 10 – Fractal Forward

- The ‘General Inputs’ for the Fractal Forward indicator are displayed below. In this example, a (2) step prediction is used. The Green line measures the strength of the predicted high, low, and close over three periods. When they are all in the same direction the indicator is strongest at a (9) or (-9) level. Please refer to the next page for more information on this indicator.
The Fractal Forward Indicator

Fractal Forward – This indicator uses the predictor to gauge the strength and direction of the market. Technically, the indicator is meant to determine if the predictions (High, Low, Close) are predicting in the same direction (up, down) or some variation in-between. In practice, three predictions are made for each type of price (High, Low, Close) over the last three bars. Three bars are used, because that is the minimum number of points necessary to plot a trend. Every time a prediction is higher than a previous prediction, a value of positive one (+1) is assigned. Every time a prediction is lower than a previous prediction, a value of negative one (-1) is assigned. When all of these numbers are totaled for each price type (High, Low, Close), a total of positive nine to negative nine (+9 to -9) is possible on the indicator. For example, if the indicator is positive nine (+9), all three predictions over three bars over all price types (High, Low, Close) are going sequentially higher. The opposite is true for a negative nine (-9).

In summary, the Fractal Forward is meant to do the following:

1. Act as a bullish, bearish, or neutral sentiment of the three most recent high, low, and close predictions.
2. The indicator is comparing the three most recent predictions to establish a prediction trend.
3. Used as a proxy for trend strength, trend direction, or trend purity.
4. Indicate a potential change in trend direction. Example: When reversing direction from an extreme (9 or -9) the price will often follow..
Example 11 – Fractal Dimension

- Plots the fractal dimension of the underlying lag plot. Used to determine the optimum lag for predictor performance. This indicator may also be used as a trend//range indicator. Notice the (10) input for the Fractal Length. This means that 10 data points are used to calculate the fractal dimension. This should be appropriate for most cases. See next page for more information.
Example 12 – Fractal Dimension

Plots the fractal dimension of the underlying lag plot. Used to determine the optimum lag for predictor performance. This indicator may also be used as a trend/range indicator. By measuring the fractal dimension of the lag plot and hence the predictor it may be possible to forecast a trend or a range market. For values below 1.5, a trend is forecasted. For values above 1.5, a range is forecasted. In the unlikely event a 1.5 is the fractal dimension, the market is acting randomly and cannot be forecasted.

The closer the number is to the extremes (2 or 1) the stronger the signal. Notice the light blue line is the Fractal Dimension indicator. You can display values in the legend by using the ‘Options’ menu.
Trading Example – Predictor Crossover

With a few quick adjustments, it is easy to obtain the very tight predictor overlay in the image below. Unlike a moving average, the predicted price will not change once the bar opens. A moving average will always chase the bar tick per tick. This means that you will get chopped up if you trade the moving average in a range market.
Trading Example – Predictor Crossover

- This image is a trading example of a predictive crossover strategy. After placing the predictor (blue) on the chart, we took the same predictor settings and added a second predictor (yellow), but with (2) steps and a (6) smoothing level. This turns the predictor into a forward looking average of the predictor.

- In this image, the blue predictor has no smoothing (1) and the yellow predictor is smoothed over (6) bars. The effect creates a buy or sell signal. Once you have the two predictors on the chart, you can add the Fractal Oscillator and Fractal Forward indicators for confirmation.
The **FRACTAL FINANCE** Toolkit

**Includes:**
- Fractal Basics
- Fractal Forward indicator
- Fractal Predictor
- Fractal Wave Oscillator
- Available at: www.fractalfinance.com
- Contact Us: info@fractalfinance.com
- Additional trading examples can be found on the website.
Pioneers in the fractal exploration of financial markets!

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