# UNDERSTANDING AND USING THE FISHER STOCHASTICS STUDY: FW_FT_3XSTOCHASTICS

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## INTRODUCTION

The Fisher Stochastics study is a combination of two valuable tools available to Firstwave traders:

1. SOAP and STAMP stochastics; and
2. Fisher Transform study

The synthesis of these two studies provides an excellent way to time entry for price reversals that a trader is anticipating. This document describes the math behind the study (as painlessly as I can), what the indicators of the mean, how to use it in trading, and how to configure it.

## BACKGROUND ON FISHER TRANSFORMS

The Fisher Transform study was introduced by John Ehlers as a method of predicting market turning points. Ehlers observed that stock prices tend to oscillate in the same manner as a sine wave. This seems reasonable; even in trending markets we draw channels and see prices oscillate between channel extremes. The blue line in Figure 1 shows how prices tend to cluster near the high and low in oscillating markets.

Tops and bottoms form at the extremes. The blue line on the graph tells us that the price bar of a turning point will be the proverbial tree in a forest of bars that are near the extreme. The Fisher Transform is a statistical concept that takes curves of one shape and makes them look more like a bell curve. The red line in the chart from the Ehlers article shows what happens the blue line is transformed. Think of it as one of those curved mirrors in the carnival fun house: when you look at yourself in such a mirror and move an arm or a leg you can tell it's a reflection of you, but the shape is completely different.

In the context of stock prices the fisher transform funny mirror spreads out the deepest and darkest part of the forest so that it's easier to find the tree that represents a top or bottom.

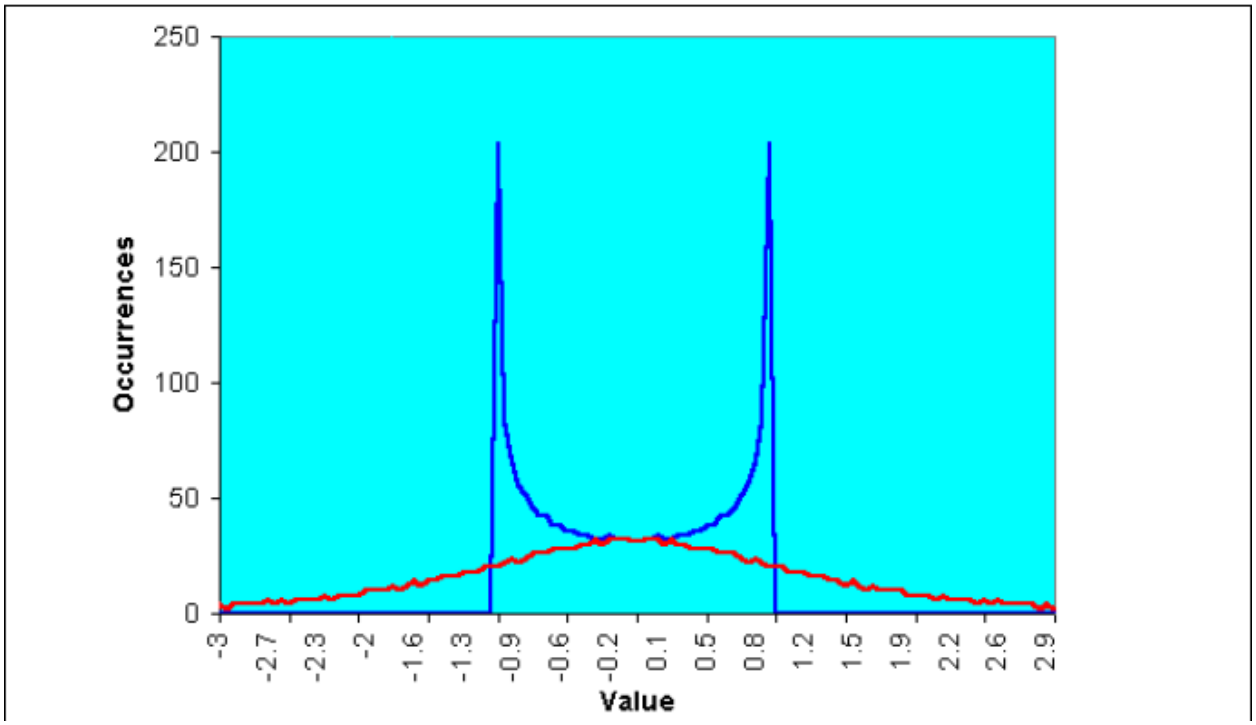


Figure 1 - Distribution of oscillating prices and transformed oscillating prices

Ehlers's paper doesn't fully explain one step that he takes in his study. After transforming signals he takes a continuous exponential moving average of the transformed value with alpha of 0.5. It's unclear to me if there is a theoretical reason to take this, but it is clear to me that without it that the Fisher Transform wouldn't do much. While the fisher transform will change the shape of prices, If prices go up then the transformed price will go up and if prices go down then the transformed price goes down. This is just like the funny mirror. Even though you look different, your eyes remain above your nose and your nose remains above your mouth, etc. However, after the EMA, it is possible for prices to go up and the curve to go down. In the fisher transform study this would indicate a top.

## EXPANDING THE FISHER TRANSFORM THROUGH STOCHASTICS

Like the Fisher Transform study, stochastics have been used to help identify turning points. A stochastic %K line can identify when prices are pushing their highs or lows, but not so good a job at determining when trend will change and reverse. A cross of a slower-moving %D line is often used to signal that a trend change may be occurring.

The important observation for the Fisher Stochastics study is that we are most interested in the overbought and oversold areas because stochastics will be in this area when trend changes occur. We want to shine a light on this areas and try to find a way to overcome a typical problem with stochastics: it's great for identifying overbought or oversold conditions but not as good at predicting when that condition will change.

So we introduce the Fisher Transform as a way to shine a brighter light on the overbought and oversold portions of the %K line. When the transformed %K turns upward it indicates a potential end to a downtrend and when the transformed %K turns downward it indicates a potential end of an uptrend.

## THE FISHER STOCHASTICS STUDY

### AN OVERVIEW:

The Fisher Stochastics study has four lines:

1. A cyan line representing Ehlers's Fisher Transform of price.
2. A yellow line representing the transform of stochastics (5,3).
3. A green line representing the transform of stochastics (8,5).
4. A magenta line representing the transform of stochastics (17,5).

These lines are shown in Figure 2 and each has an identical interpretation: when they turn upward an uptrend may be starting and when they turn downward a downtrend may be starting. The study indicates these reversals with arrows (cyan arrows when the cyan line changes direction, yellow when the yellow line changes direction, etc…). When trend changes the cyan and yellow lines usually move first. They will give the first indication but it is more likely to be a false positive. The green fires later, followed by the magenta. These later signals are more likely to identify a true change in trend, but may also fire later.

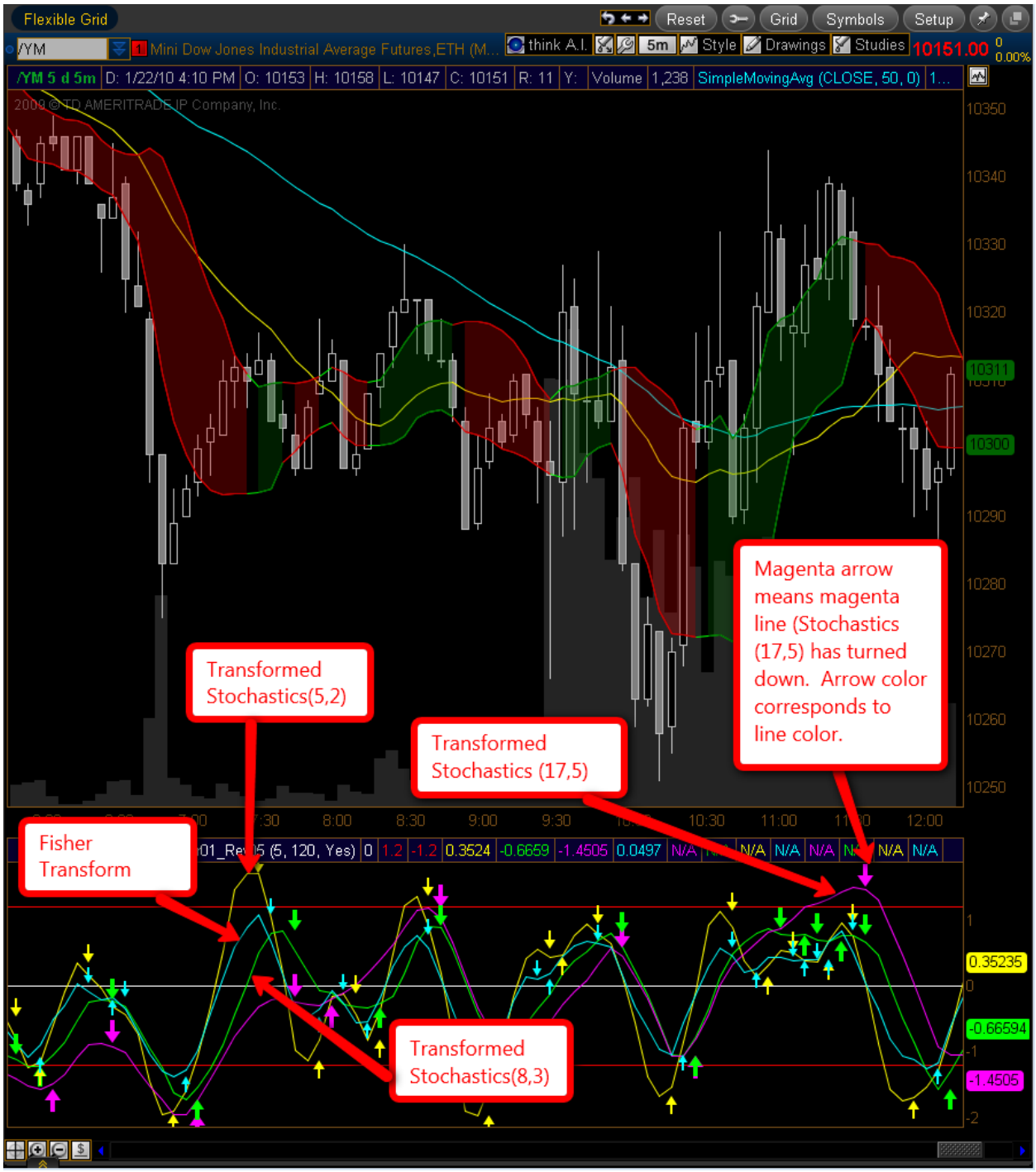


Figure 2 - Indicators in the Fisher Stochastics study

There is also valuable information in the relationship of Fisher Stochastic lines to each other. In much the same way as a Stochastic cross of %K and %D, or a cross of Stochastics (5,3) and Stochastics (8,5) as described in the Firstwave SOAP CD, crosses of transformed stochastics can

indicate turns. With all lines in overbought or oversold, yellow crossing green would provide an early warning and yellow and green crossing magenta would confirm.

When the Fisher Stochastics study is configured to show SOAP signals as described in the configuration section vertical lines will be placed on the study to show the location of stochastic crosses as shown in Figure 3. They are interpreted as follows:

- Green line labeled “SOAP”: SOAP buy signal.
- Red line labeled “SOAP”: SOAP sell signal.
- Blue line: template buy signal.
- Yellow line: template sell signal.

Note that TOS places vertical lines just to the left of the bar where the signal occurs so if there is a SOAP signal and a fisher arrow on the same bar it will look like the vertical line for the SOAP is just to the left of the arrow as opposed to running right through the middle of the arrow.

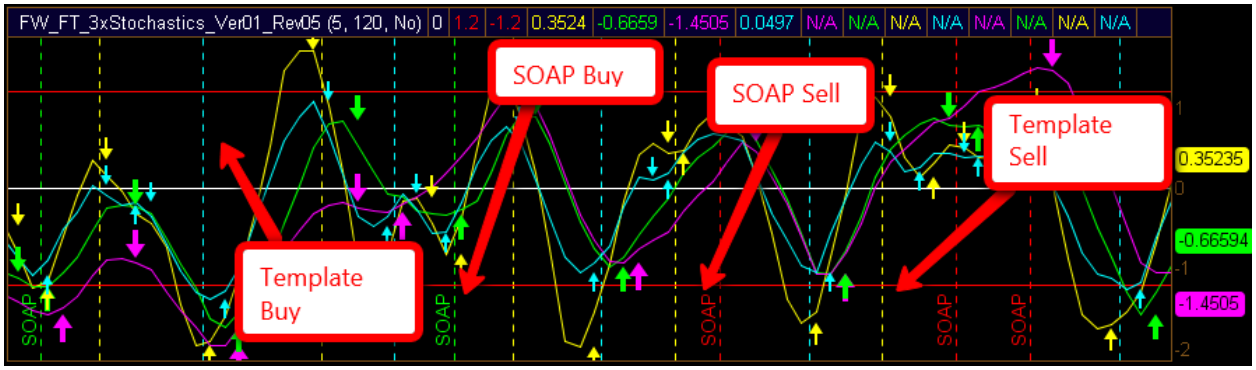


Figure 3 - Fisher Stochastics study with SOAP lines

## CONFIGURING FISHER STOCHASTICS

The Fisher Stochastics study has relatively few configuration parameters shown in Figure 4. The inputs have the following meaning:

- **Fisher len:** The fisher transform (cyan line) has a # of periods that it looks back. The original Ehler version uses 10, FW prefers 5 and that is the default for the study.
- **ob os:** controls the position of the overbought and oversold lines. The default value of 120 places them at +1.20 and -1.20. Transformed stochastics tend to cross this area at about the same time as regular stochastics cross 80 and 20. Changing the value to 100 would put the lines at +1.00 and -1.00.
- **hide soap:** The study has the ability to count stochastic crosses for SOAP signal as vertical lines. Note this is a cross of the untransformed stochastics – in other words the

lines appear at the exact same time as arrows on the SOAPCount study and not necessarily at the same time as the crosses of Fisher Stochstics lines.

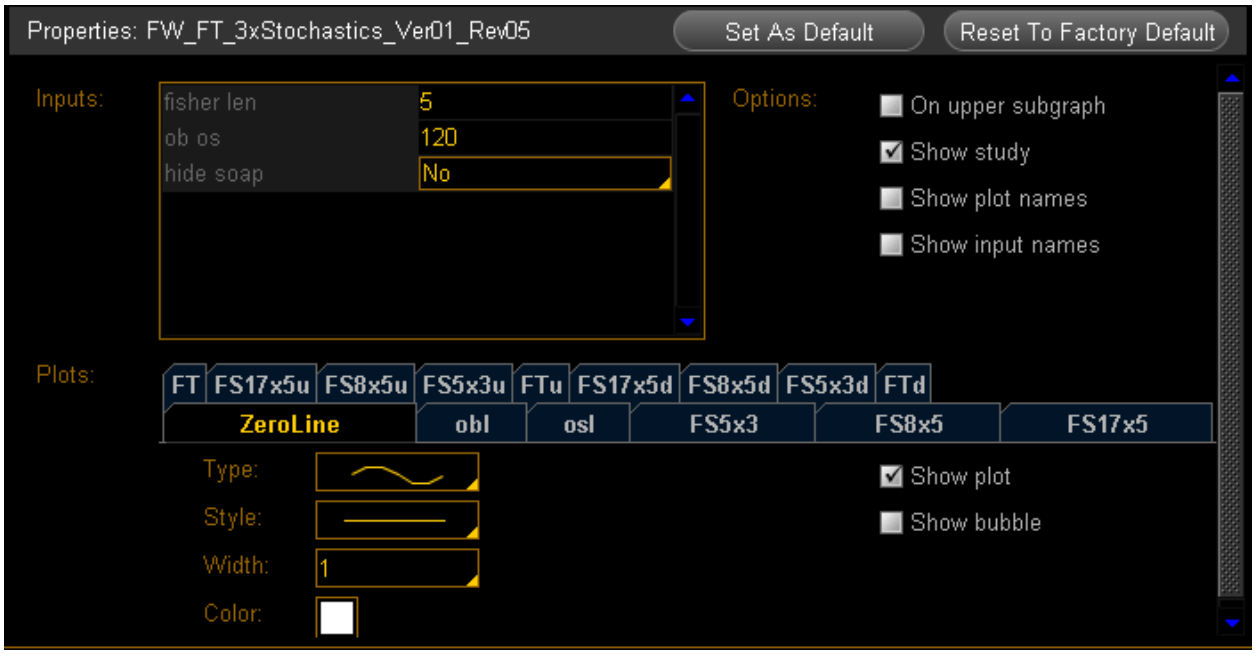


Figure 4 - Fisher Stochastics Configuration

## USING FISHER STOCHASTICS TO TIME TRADE ENTRY

The Fisher Stochastics study is most powerful when used to time an anticipated move. That move could be:

- a turn from a key level in a MAP pattern;
- price reversing at a pivot;
- price reversing at the completion of an Elliott wave pattern; or
- price reversing at key support or resistance.

The hourly chart of /YM in Figure 5 shows three great examples of using the Fisher Stochastics study this way.

When price reaches the woodie pivot at note 1 it pauses as expected and could either bounce or continue through the pivot. A SOAP buy, and up arrows for each line in the Fisher Stochastics study indicate price is expected to move up. An aggressive trader could buy at the close of the bar where the yellow and blue arrows show and price still has 123 ticks to capture to the upside. A more conservative trader could wait one bar for a break of MOBO and the green magenta Fisher Stochastics arrows. There are still 71 ticks to capture after this signal.

Note 2 has a similar bounce from a woodie pivot confirmed by SOAP and Fisher Stochastics.

Note 3 shows an example of using the Fisher Stochastics to help time an entry of a move predicted by a MAP pattern. A break below the 20 MA followed by a failed retest gives a warning to be alert to a possible MAP breakdown occurring. A break of the 50 continues the pattern and so a Firstwave student would looking for an opportunity to sell a failure at the 50. In this case, we only get an air kiss of the 50 and are left with a question of whether another attempt will be made. The magenta arrow can be used to time an entry. That might make for a nervous trade, because it would have you waiting out a bounce > 58 ticks. Looking at the signals on a 5 minute chart combined with the one hour chart will give good signals.

The important thing to remember is that the Fisher Stochastics are most valuable in signaling an expected move as opposed to being the one signal to enter a trade.


Figure 5 - Timing anticipated turning points with Fisher Stochastics

## COMMON PATTERNS

The "1-2 Punch" signal shown in Figure 6 is a good signal for short-term charts such as 5 minute or 333 tick. A 1-2 punch occurs when you receive a SOAP buy or sell and then EXACTLY one bar later receive a Magenta arrow in the same direction of SOAP. This is not necessarily a long-term change of trend, but may provide good short term moves like the 30 tick move shown in

the example. Moves may also happen when the magenta arrow occurs on the same bar as SOAP or 2 bars after, but in my experience in these fail a greater percentage of the time.

None of these patterns is foolproof, so always correlate with other indicators and other timeframes. As discussed above, the study works best as a timing method for anticipated moves. The patterns in this section which are signals all by themselves can be profitable, but they will dramatically underperform using the study as a timing method in a comprehensive system.

The 123 cluster signal occurs when three alternating arrows occur in close proximity outside of the overbought or oversold lines as shown in Figure 7 . The signal is strongest with magenta arrows, but a cluster of green arrows can also work. A variation of this signal is the 123 cluster with SOAP. This signal occurs when there is a SOAP buy or sell signal in the same direction as the 123 cluster as shown in Figure 8. The SOAP signal should be within a bar or two of the last arrow in the cluster.


Figure 6 - 1-2 Punch buy signal


Figure 7 - 123 Cluster Sell Signal


Figure 8 - 123 Cluster with SOAP buy signal

Clusters can sometimes be more than 3 arrows. Clusters of 5, 7, etc… can lead to good moves. Of course if 5 can lead to a good move that's a good indication that a cluster of 3 doesn't always result in predicted move. These signals do fail. Sometimes these failures are predictable such as in Figure 9. Strong trend is obvious with MOBO and CCI and should raise warning flags. Always correlate with other signals and timeframes. Even then trades can go wrong, so proper money management is critical.


Figure 9 - Failure of Fisher Stochastic signals