

CycleIntelligence User's Manual

As of October 23, 2012



Conceptually, using CycleIntelligence is as simple to use as picking the ticker you want to forecast and then pressing one button. A few seconds will transpire and then a 90-day forecast will appear on the screen. It is just that simple.

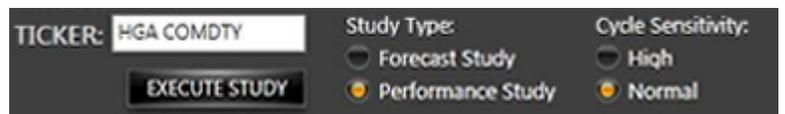
But, of course, there some nuances that you will want to know about; things like storing, sorting, selecting and removing old forecasts; and, looking at the most recent 90-day forecast to see how close the forecast came to accurately predicting the price, trend, tops and bottoms of the financial instrument you are interested in. You can run a forecast and the most recent 90-day forecast on any bond, currency, index or stock in the database as long as it has at least two years of historical closing price data.

How to Load the Program from a Bloomberg Terminal...

APPS CYCLE<GO>

How to Run a Forecast...

In the upper left corner of CycleIntelligence screen is the "Ticker" field where you can enter any ticker for any equity, bond,



currency, index, commodity, future or stock. If you select a financial instrument with less than enough historical data to perform a forecast, the program will let you know via a message pop-up.

Once you have entered the ticker symbol, you can select two of four options:

- Perform Forecast Study – This will generate a forecast for the next 90 days, or
- Perform Performance Study – This will generate the most recent 90-day back-test with performance statistics comparing the forecast to the actual historical data, or
- Select “High” or “Normal” Cycle Sensitivity – High Cycle Sensitivity means more weight is given to the most recently detected time cycles. Normal Cycle Sensitivity means more weight is given to cycle stability or consistency. If you believe recent events should play a larger role in the forecast of the next 90 days, you should select “High Cycle Sensitivity.” If you believe that recent events are more noise than a longer term systemic change, then you should select “Normal Cycle Sensitivity.”

After selecting two of the above four choices (selection is performed by clicking on small round ‘radio’ buttons with your mouse), all you have to do is click on the “EXECUTE STUDY” button. Once you have clicked the EXECUTE STUDY button, the program analyzes the historical data and produces the forecast results via a chart. During the processing, the screen will display a progress icon showing you the status of the processing.

Interpreting and Using the Forecast Charts...

When either a Forecast Study or a Performance Study is performed by the program, a chart similar to the one on the right is displayed.

About one month of historical data is displayed, along with three months of forecast data.

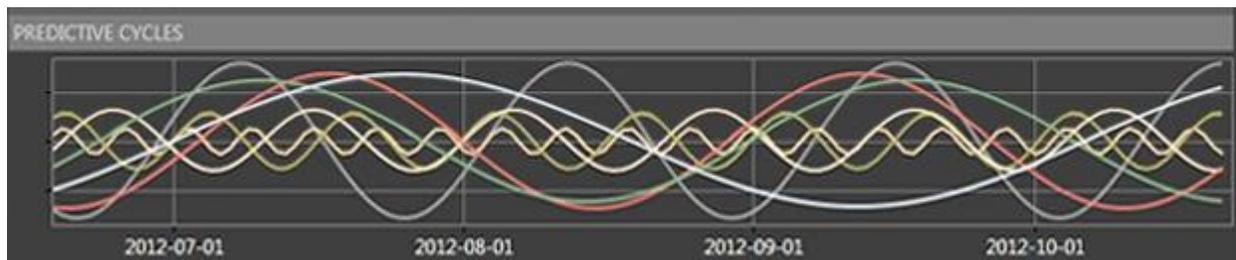


Various lines (shown above) can be clicked on or off with regard to being displayed on the chart. These include:

- Actual Price – If this is a Performance Study chart, the actual price will be displayed throughout the forecast so that you can readily see how close the forecast came to predicting the exact price. If this is a Forecast Study chart, the actual price will only be displayed to the left (historically) of the start of the forecast.

- b. Actual Price CMA – We use a “21-day Centered Moving Average” to smooth the data and make the trends more pronounced. Each data point is calculated by taking the price average of the most recent 10 days plus the next forecast 10 days plus the current day.
- c. Forecast Price – This is the actual price forecast with no smoothing.
- d. Forecast Price CMA – This is the actual price forecast represented by a 21-day Centered Moving Average to smooth the data and make trends more pronounced and easier to see.
- e. Expected Move Band – Utilizing historical volatility, the program calculates one standard deviation of likely future pricing movement. This is called the “Expected Move”. Then, the program takes one-third of that value and plots it as a band on either side of the Forecast CMA. Price performance stats are kept on the accuracy of price forecasts within the EM Band.
- f. Bull/Bear Bands – Future bottoms are represented by vertical green lines. Future tops are represented by vertical red lines. A green line signifies the start of a bullish period. A red line signifies the start of a bearish period.

Just below the large chart showing the Forecast or 90-day Back-Test, is a chart that shows you all the “Predictive Cycles” that were found in the analysis of the historical data (see below).



Predictive Cycles are those time cycles that have been detected with the following attributes:

- a. The cycles are persistent over a long period of time; meaning these cycles tend to show up more than 90% of the time in all prior analysis cycles.
- b. The cycles are not only persistent; they hold a high degree of repetitiveness. This means the cycles become more reliably predictive and will likely repeat into the future.
- c. Volatility is a component of each cycle and as such, these cycles tend to significantly reflect the past and future impact of day-to-day volatility.
- d. The cycles have a strong level of consistency; meaning that even when there is an abnormal amount of noise and/or exogenous (one-off) events, historically, these cycles remained consistent and dominant. This means these cycles will likely be dominant in the future and are, therefore, more predictive.

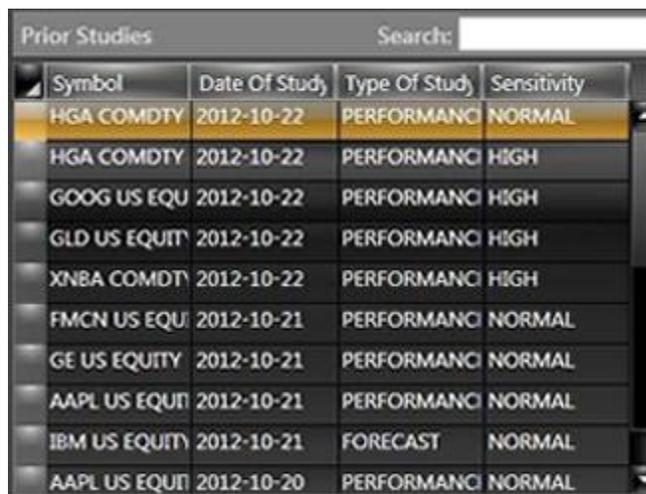
Once these cycles are ‘discovered’ by the program, a composite forecast is generated by combining all the cycles into a single line. This line, which provides us with the relative change in price, from day-to-day, is used to project what the price will be for any financial instrument, to the day, 90 days into the future.

Storing and Retrieving Forecasts

Each time you run a forecast or performance study, the study is stored for future reference. There is no practical limit on the number of studies that you can store, but as a practical matter, you should only keep studies for as long as they remain useful to you.

On the left side of your screen are three boxes of information. The top box, as shown on the right, is a list of historical studies represented by four columns:

- Symbol – This is the symbol you used when you created the study. You can click on the “Symbol” column to sort the studies by symbol name. Clicking the column will provide the list in alphabetical order. Clicking it again will provide the list in reverse alphabetical order.
- Date of Study – This is the day you created a study. You can also click this column and put the list in date order or reverse date order. More than one study per Symbol can be run as long as the studies are run on different dates.
- Type of Study – This is either “Performance” or “Forecast”. A Performance study is a 90-day back-test study. A Forecast study is for the upcoming 90 days.
- Sensitivity – This is either “Normal” or “High”.



The screenshot shows a window titled "Prior Studies" with a search bar. Below the search bar is a table with four columns: Symbol, Date Of Study, Type Of Study, and Sensitivity. The table contains several rows of data, with the first row highlighted in yellow.

Symbol	Date Of Study	Type Of Study	Sensitivity
HGA COMDTY	2012-10-22	PERFORMANC	NORMAL
HGA COMDTY	2012-10-22	PERFORMANC	HIGH
GOOG US EQU	2012-10-22	PERFORMANC	HIGH
GLD US EQUIT	2012-10-22	PERFORMANC	HIGH
XNBA COMDTY	2012-10-22	PERFORMANC	HIGH
FMCN US EQU	2012-10-21	PERFORMANC	NORMAL
GE US EQUITY	2012-10-21	PERFORMANC	NORMAL
AAPL US EQUIT	2012-10-21	PERFORMANC	NORMAL
IBM US EQUITY	2012-10-21	FORECAST	NORMAL
AAPL US EQUIT	2012-10-20	PERFORMANC	NORMAL

You can delete a study from your list of historical studies by right-mouse clicking on any row.

Performance Results...

When you run a Performance Study, the program performs a 90-day back-test. The test is completely “out-of-sample”, meaning no historical data for the last 90 days, was available to or used by the program. The forecast is completely blind to all historical data following a date of 90 days ago.

Once the Performance Study is completed, you can view the chart as noted above, and you can see the results of the performance statistics in two tables. In the top table, you will see how close the forecast was for the following:

- Trend Correlation – These are the 30, 60 and 90-day results of how closely the forecast came to predicting the pricing trend. Accuracy of price is not included in this statistic; only trend direction. The results



The screenshot shows a window titled "Performance Results - HGA COMDTY (2012-10-22)". Below the title is a table with four columns: Criteria, 30-Day, 60-Day, and 90-Day. The table contains three rows of data.

Criteria	30-Day	60-Day	90-Day
Trend Correlation	32 %	58 %	63 %
Win Percent	67 %	50 %	60 %
33% EM Band Accuracy	71 %	52 %	34 %

show how close the forecast trends were to the actual historical pricing trends.

- b. Win Percent – These are the 30, 60 and 90-day results of how many fictitious trades would have been winning trades if those trades had been made at the beginning and ending of forecast trends.
- c. 33% EM Band Accuracy – These are the 30, 60 and 90-day results of how much of the time was the actual price, on a closing price basis, actually inside the Expected Move Bands.

The bottom table contains additional performance criteria as calculated from forecast trends. If the trend “Type” is “Bull”, that means a vertical green line is drawn on the chart and the assumption is a long position is taken in the financial instrument (Ticker). The duration of the trend, in days, is listed. The net gain, as a percentage, is listed by calculating the price of the Ticker at the end of the trend minus the price of the ticker at the beginning of the trend (for Bull trends). The reverse is done for Bear trends. Lastly, the net percentage gain as accumulated across all trends is provided in the last column.

Start Date	Type	Duration	Net Gain	Total Gain
2012-07-23	Bull	7	1 %	1 %
2012-07-30	Bear	23	-1 %	0 %
2012-08-22	Bull	30	9 %	10 %
2012-09-21	Bear	27	1 %	11 %