ADVISOR PERSPECTIVES

Improving on Buy and Hold: A Buy Signal

By Georg Vrba, P.E.
December 13, 2011

Advisor Perspectives welcomes guest contributions. The views presented here do not necessarily represent those of Advisor Perspectives.

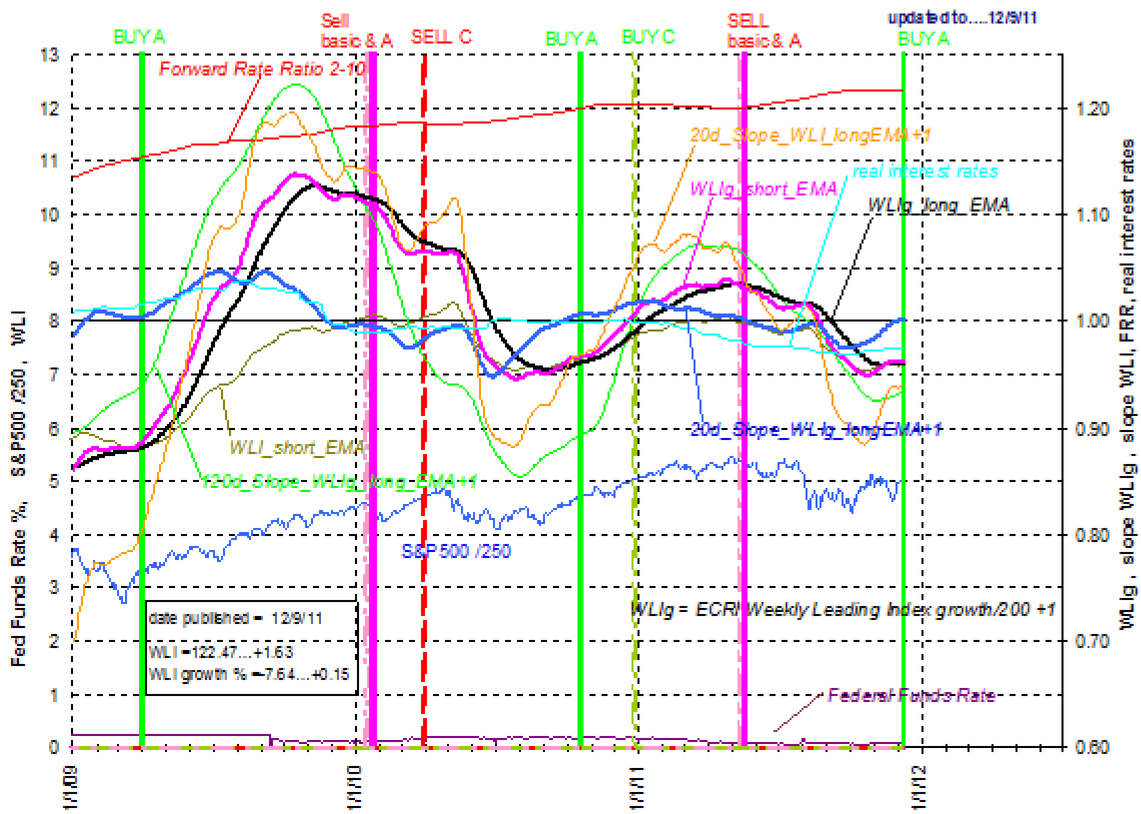
In my August 2010 article I advocated a market timing strategy, to sell or significantly reduce one's stock holdings in anticipation of a recession or slowdown in the economy and switch into cash or a low-beta Treasury bond fund, and then reverse the process ahead of a recovery. I presented a model to determine the timing of each move.

I have updated this model and a *type-A buy signal* was generated on December 9, as shown in figure 1.

Since publication of the original article two previous signals were generated: a buy signal in October 2010 and a sell signal in May 2011. Both signals provided the expected results. The S&P 500 index gained about 13% from the date of the buy signal to the date of the sell signal and has since lost about 7% to the date of the new buy signal.

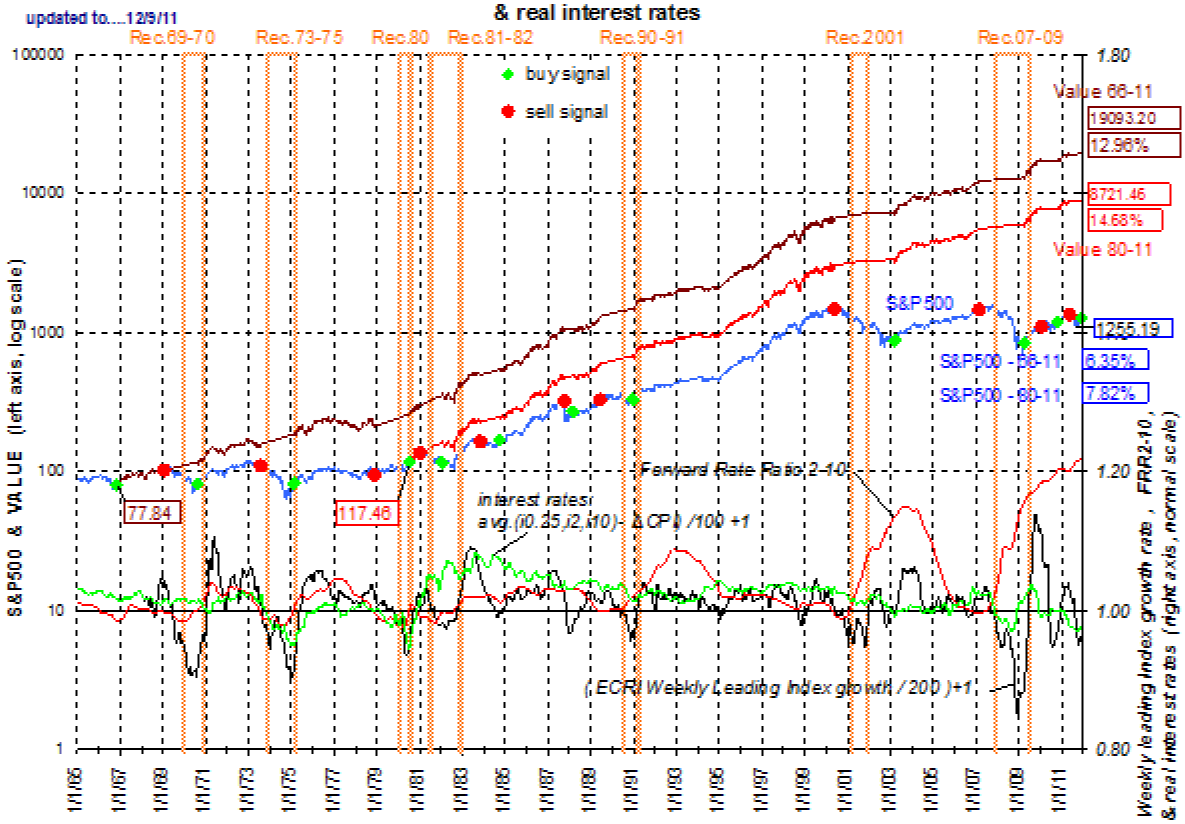
I have made some changes to improve the model. Figures 1 and 2 incorporate these changes and have been updated to December 9, 2011.

Figure 1 : 2009-11 Fed Funds Rate, S&P 500, FRR, WLIg, slope WLIg, slope WLI, & real interest rates



Figures 2 shows the returns for investments made using the starting value of the S&P in 1966 and 1980. Following the model's signals, one would have obtained about double the average annual return than from a permanent investment in the S&P, and the value of one's investments now would have been about 15 and 7 times higher than the current value of the S&P for each of the two starting dates, respectively.

Figure 2: Recessions, Weekly leading Index growth, FRR2-10, S&P 500, Value, & real interest rates



Changes to the model

I have made the following changes:

1. The *type-A sell signal* is now generated one week after the initial *basic sell signal*.
2. The *type-B sell signal* has been omitted.
3. The sub-criterion that the Forward Rate Ratio FRR2-10 must be above 1.175 for a *basic sell signal* to occur has been eliminated and is replaced by item 4 below.
4. To provide for conditions of prolonged economic weakness, when real interest rates may be negative, an additional sell sub-criterion has been introduced which is based on the difference of the average of the 3-month T-Bill, 2-year and 10-year T-Note yields, and the annual inflation rate. (Three of the last seven recessions were accompanied by negative interest rates as can be seen from figure 2.)

The required economic data and criteria for sell and buy signals to be generated are listed in the Appendix. Note that all references to days in the Appendix refer to trading days not calendar days; there are about 252 trading days per year. Please refer to the original article for the definition of the various terms used.

Appendix

Economic data

The input data is the daily S&P 500 Index from 1965 to 2011 and the following indicators:

- The 3-month T-Bill, 2-year and 10-year U.S. Treasury Note yields.
- The year on year percentage change of the Consumer Price Index.
- The Federal Funds Rate.
- The ECRI's U.S. Weekly Leading Index (WLI).
- The ECRI's U.S. Weekly Leading Index growth rate (WLIg).

Sell Signals
Basic sell signal* and *sell signal type-A

A *basic sell signal* is generated when the following simultaneously apply:

- The [short EMA of *WLIg+1*] moves below the [long EMA of *WLIg+1*] while the [long EMA of *WLIg+1*] still shows positive growth but which is steadily declining,
  and
- the EMA of the Forward Rate Ratio FRR2-10 is at or below 1.00 (indicating an inversion of the yield curve), or if the average of the 3-month T-Bill, 2-year, and 10-year T-Note yields minus the annual inflation rate is less than -1.00%,
  and
- when X is greater than the maximum of X over the preceding 130 days – 0.5%,
  where X = the maximum Federal Funds Rate (FFR) over the preceding 130 days minus the minimum FFR over the preceding 650 days.

A *Type-A sell signal* is generated one week after a *basic sell signal* occurs.

Sell signal type-B

The *type-B sell signal* is now redundant because a *Type-A sell signal* is now generated almost immediately after a *basic sell signal.*

Sell signal type-C

A *type-C sell signal* is generated when the following simultaneously apply:

- The 120-day slope of the [long EMA of *WLIg+1*] slopes downward and initially passes through 1.015 and if within a 250 day period this slope subsequently passes through 0.980,
  and
- just before the signal date the market must still be in a modestly rising trend, which requires the 35-day slope of the [EMA of S&P500] to be greater than 0.005 x [EMA of S&P500].

Buy signals

Buy signal type-A

A *type-A buy signal* is generated when the following simultaneously apply:

- The [short EMA of *WLIg+1*], after having formed a bottom, moves from negative growth to positive growth and moves above the [long EMA of *WLIg+1*], and
- the [short EMA of *WLIg+1*] must be less than 1.000 and the 20-day slope of the [long EMA of *WLIg+1*] must be greater than 1.000, and
- the 20-day slope of the [long EMA of *WLI*] must still be negative or flat, and
- the [short EMA of *WLI+1*], after having bottomed out, moves upwards again, and
- the Federal Funds Rate must have dropped at least 2.50% from a previous high, the previous high being considered over the preceding 1,300-day period.

Buy signal type-B

A *type-B buy signal* is generated when the conditions for a *type-A buy* signal have been met, but with the Federal Funds Rate condition omitted, and when the following simultaneously apply:

- The EMA of the Forward Rate Ratio is greater than 1.050.
- Also the 20-day slope of the [long EMA of *WLI+1*] must be greater than 1.000.

Buy signal type-C

A *type-C buy signal* is generated when the following simultaneously apply:

- The 120-day slope of the [long EMA of *WLIg+1*] is greater than the [long EMA of *WLIg+1*] and is between 1.010 and 0.975, and
- the [long EMA of *WLIg+1*] minus the [short EMA of *WLIg+1*] must be greater than 0.005.