IDENTIFYING TREND MODES and CYCLE MODES

Left-Brained Concepts for Traders in their Right Minds
• 2008 Charles H. Dow award runner-up

• Author
  – MESA, and Trading Market Cycles
  – Rocket Science for Traders
  – Cybernetic Analysis for Stocks and Futures

• Website
  – www.mesasoftware.com
TRADING IS EASY

John Ehlers

• **In the Trend Mode:**
  – Buy and Hold when trend is up
  – Sell and Hold when trend is down

• **In the Cycle Mode:**
  – Buy at the cycle valley
  – Sell at the cycle peak
TRADITIONAL TECHNOLOGIES

• Trend Mode
  – Data Smoothers (moving averages, etc.)

• Cycle Mode
  – Oscillators (RSI, Stochastic, etc.)

• Compromise Solutions
  – Adaptive moving averages, KAMA, VIDYA, etc.
  – I have found them not to be very effective.
THE REAL PROBLEM

John Ehlers

• Suppose an RSI signals a valley
  – The trading action is to buy
• However, the market keeps going down
  – In hindsight a trend mode has started

• Oscillators and Moving Averages often give opposite signals
  – There are a jillion “fixes” suggested

THE REAL PROBLEM IS
HOW TO IDENTIFY THE CORRECT MARKET MODE
MARKET MODE IDENTIFICATION

• First, create a simplified model of the market
• The simple model has two components
  – A perfect trend
  – A perfect cycle
• Superimpose the two components for the composite model
  – Enables subsequent decomposition into the components
The Simple Model

- **Trend** = Black
- **Cycle** = Red
- **Composite** = Blue
Knowing the cycle period, the Trend Slope is ALWAYS the momentum across the full cycle period.
• Oscillators often lose the cycle amplitude

• I prefer a BandPass Filter
  – Rejects low frequency (trend) components
  – Rejects high frequency (noise) components
  – Retains cycle amplitude (phase to some degree)

• EasyLanguage Code:
  
  Inputs: Period(20),
          Delta(.1);
  Vars:  gamma(0),
          alpha(0),
          beta(0),
          BP(0);
  beta = Cosine(360 / Period);
  gamma = 1 / Cosine(720*delta / Period);
  alpha = gamma - SquareRoot(gamma*gamma - 1);
  BP = .5*(1 - alpha)*(Close - Close[2]) + beta*(1 + alpha)*BP[1] - alpha*BP[2];

  Plot1(BP,"BP", Red, 2);
Cycle Component for MSFT

John Ehlers

- Assumed 20 Bar Period (monthly cycle)
CYCLE AMPLITUDE RECOVERY

• Remember this from trigonometry?
  • $1 = \sin^2(x) + \cos^2(x)$

• The cycle component is a sine wave
  – A Cosine is a Sine delayed by one fourth of a cycle period

• We use the trig identity to find the power in the cycle component
  – Average across the cycle period for smoothing
  – Take the square root to get the RMS wave amplitude
  – Multiply by 1.414 to get the peak wave amplitude
  – Double to get the peak-to-peak wave amplitude
EasyLanguage Code – Cycle Amplitude

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Inputs:  Period(20),
        Delta(.1);

Vars:    gamma(0),
         alpha(0),
         beta(0),
         BP(0),
         Power(0),
         count(0),
         RMS(0),
         PtoP(0);

beta = Cosine(360 / Period);
gamma = 1 / Cosine(720*delta / Period);
alp ha = gamma - SquareRoot(gamma*gamma - 1);
BP = .5*(1 - alpha)*(Close - Close[2]) + beta*(1 + alpha)*BP[1] - alpha*BP[2];
Power = 0;
For count = 0 to Period - 1 Begin
         Power = Power + BP[count]*BP[count] + BP[count + Period / 4]*BP[count + Period / 4];
End;
RMS = SquareRoot(Power / Period);
PtoP = 2*1.414*RMS;
Plot1(PtoP, "PP", Yellow, 2);
TREND VIGOR

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• Trend Vigor is the ratio of the (smoothed) trend slope across one full cycle period to the cycle peak-to-peak amplitude.

• If the ratio is greater than one the trend component swamps the cycle
  – Don’t stand in front of the train
  – You can still use the cycle to enter the trade at the best time in the direction of the trend

• If the ratio is less than one the trend has a minimum effect on the cycle
  – Use your favorite oscillator (mine is the Bandpass filter)
• Assume a period based on “fundamentals”
• Simply count the number of bars between successive major peaks or major valleys
• Contiguous bank of Bandpass filters
  – Corona charts (free)
  – www.mesasoftware.com
• Fourier Transform
  – Fourier Transform for Traders (free)
  – www.mesasoftware.com
• MESA
QUESTIONS?
THANK YOU FOR ATTENDING THIS WEBINAR

GOOD TRADING