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Technical Analysis 101 : Session 3

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Session 3

- Mean Reversion Oscillators
- Relative Strength Index (RSI)
- Moving Average Convergence, Divergence Indicator (MACD)
- Slow Stochastic
- Fast Stochastic
- Bollinger Bands w BDIFF
- Directional Movement Indicator with Average Directional Indicator

Oscillators and Studies

Trend Following

MACD = Moving Average Convergence Divergence

SAR = Parabolic Stop and Reverse

Momentum Indicators

RSI = Relative Strength Index

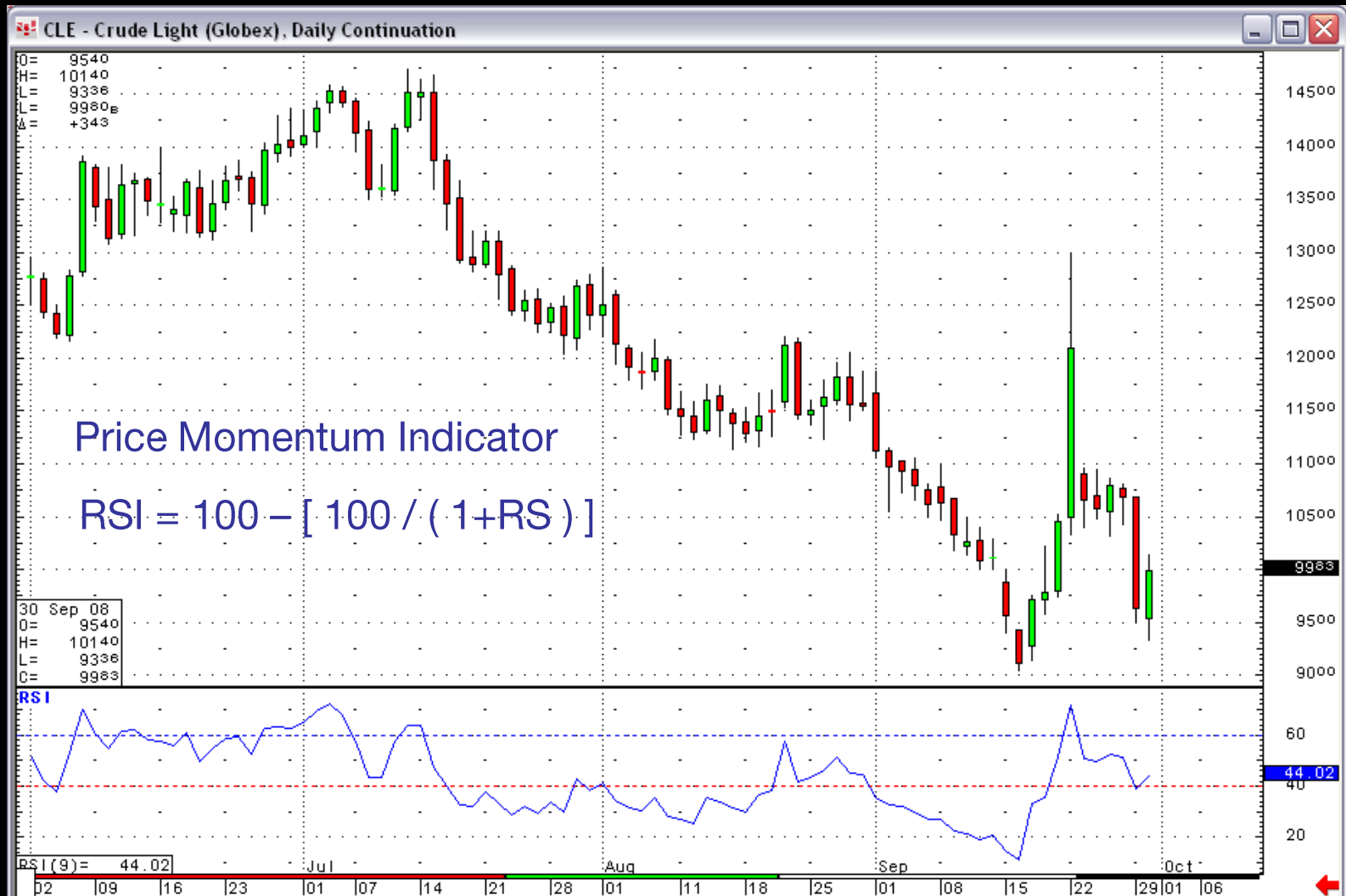
Slow Stochastic = %K and %D

ROC = Rate of Change

Timing

Elliot Wave

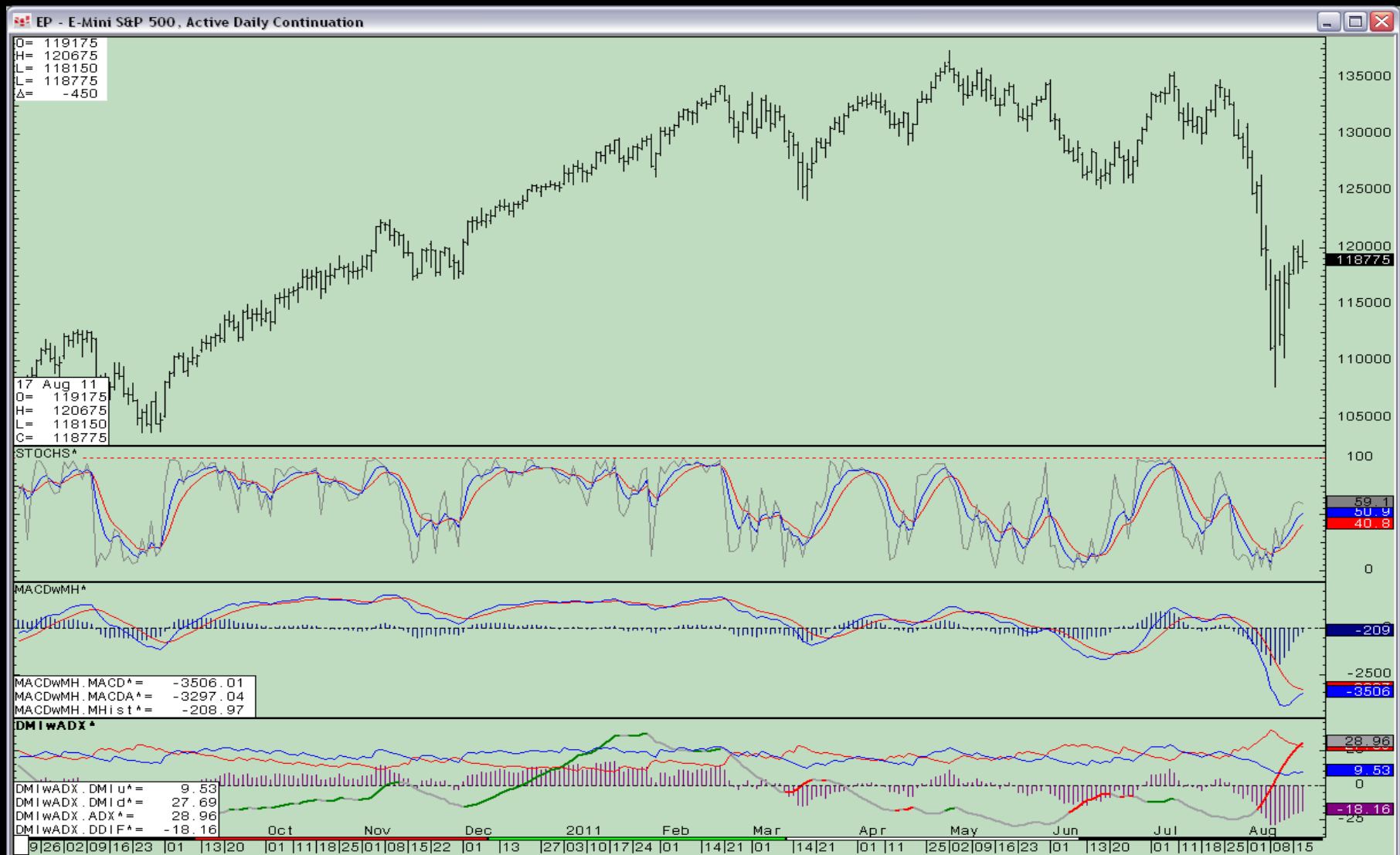
Relative Strength Index (RSI)



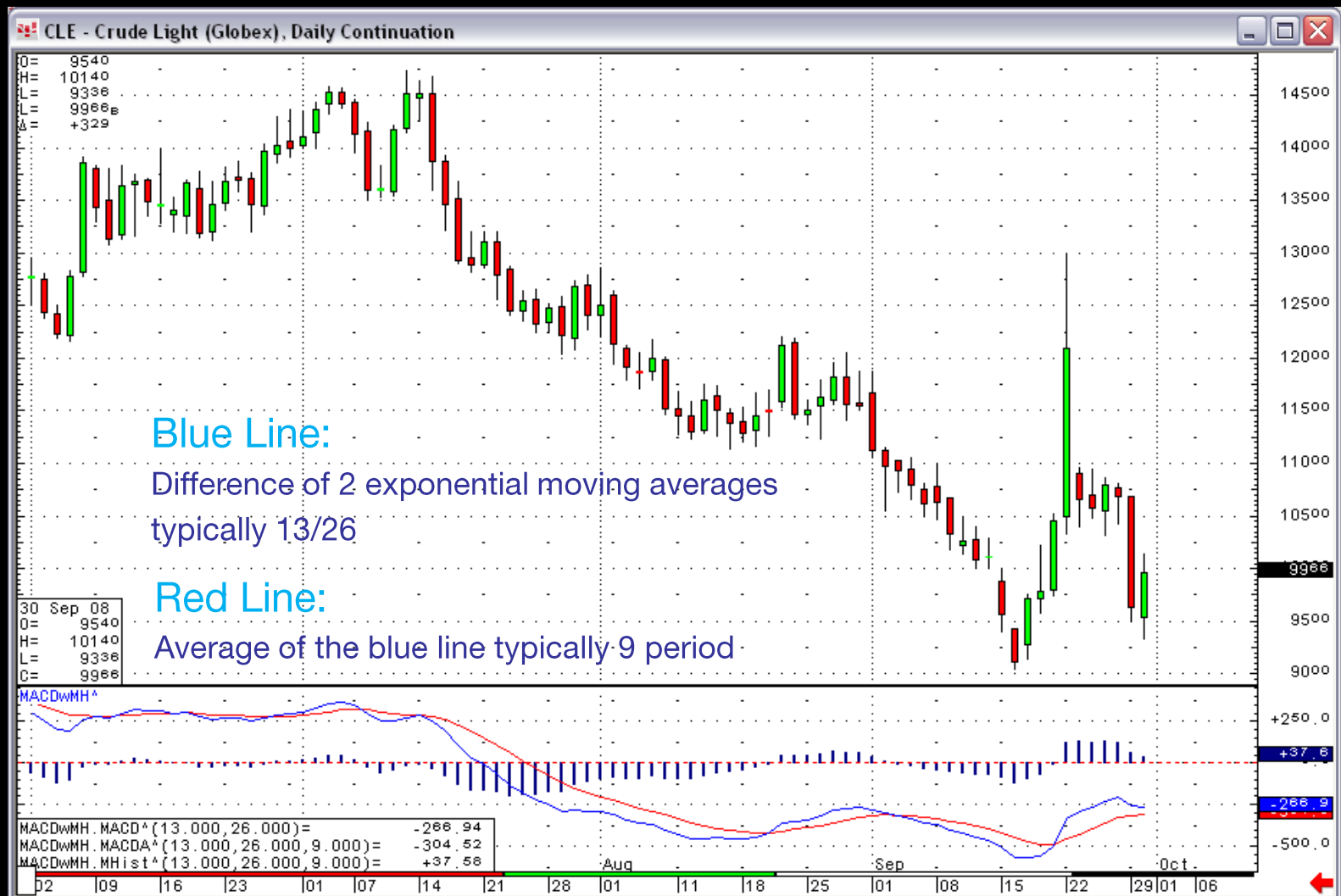
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MACD “Mac D”



Slow Stochastics



Slow Stochastics

Technical Momentum Indicator:

That compares a security's closing price to its price range over a given time period.

Sensitivity to Market Movements:

Can be reduced by adjusting the time period or by taking a moving average of the result.

$$\%K = 100[(C - L10) / (H10 - L10)]$$

C = the most recent closing price

L10 = the low of the 10 previous trading sessions

H10 = the highest price traded during the same 10-day period

%D = 3-period moving average of %K

Rate of Change (ROC)



Rate of Change (ROC)

Technical Price or Velocity Indicator:

Measures the percent of change between the most recent price and the price “n” periods in the past

Classed as a price or velocity Indicator because it measures the rate of change or the strength of moment of change

$$\frac{\text{Closing Price Today} - \text{Closing Price “n” Periods Ago}}{\text{Closing Price “n” Periods Ago.}}$$

Average Directional Movement (ADX)

- ADX is a Wells Wilder study
- ADX is a derivative of Directional Movement Indicator (DMI)
- ADX is a volatility indicator.
 - ADX measures strength of trend, independent of direction.
 - DMI provides the direction when used in conjunction.

ADX Trading

There are 4 basic methods of using the study:

- The first is as a break out by stating that the ADX has risen through 20 or 25.
- The second is for trend exhaustion. The ADX is above 45 and now turns downwards.
- The third is for acceleration. The ADX rises in value by more than 3 between the previous bar and the current bar.
- The fourth is in conjunction with the DMI and is when the ADX crosses above the higher valued DMI line.

ADX Trading 2

- For system creation, remember that a sharp change to a new trend from a previous trend will not be picked by the indicator and that a falling ADX can be a good filter for creating sideways systems, especially if you create upward limits on its value.
- The calculation is:
$$ADX = -MA[ABS((+DI - (-DI)) / (+DI + (-DI))), Smo, N]$$
where n = the number of periods used in the calculation
i.e. ADX is smoothed average of absolute value of $(+DI - (-DI)) / (+DI + (-DI))$

Directional Movement Index

The best application of DMI is present when used with another indicator. DMI should either confirm or contradict the indicator being used. It is also best to use DMI in long-term trade situations. Because the study is not as sensitive as other indicators it is appropriate to use it as a confirmation tool. When the DMI is advancing, the average is higher on the 0 to 100 scale, trend following systems are best employed. Likewise with a decreasing DMI average, the line is lower on the scale closer to 0, a counter trend system might be best. These traits represent the fact that as the average line goes higher in the scale the strength of the trend is gaining, and as the ADX goes lower the trend is losing strength. It is also important to look at the individual lines for changes in price movement.

The other application for DMI is to look at the D+ and D- lines themselves. When the D+ line crosses above the D- line a buy signal is initiated. This indicates that the positive price direction is greater than the negative. Conversely, once the D+ line crosses below the D- line, a sell trigger is present. The negative price movement is overtaking the positive.

Welles Wilder himself said that he was not comfortable using these two lines by themselves. So when looking at reversals the ADX should be above both lines and once it turns lower we should see a change in market direction. One should also look to ADX for confirmation. For a good sell signal, the D+ should be greater than D- and both should be greater than ADX ($D+ > D- > ADX$). For a good buy signal, D+ should be lower than D- and both should be lower than ADX ($D+ < D- < ADX$).

This application is much the same as momentum showing a change in the market sentiment. Wilder also says that a trend following system should not be used when the ADX line is below both D lines, as this means that the market has no discernable direction.

When using the D+ and D- crossover method, Wilder stresses the use of an extreme point. On the day the crossover occurs, the extreme point is the high or low of the day, (high for a buy, and low for a sell). The market should be able to take out that price and stay beyond it for several days before the trade is initiated or exited. This use of extreme points should keep the trader from getting into whipsaws or false breakouts.

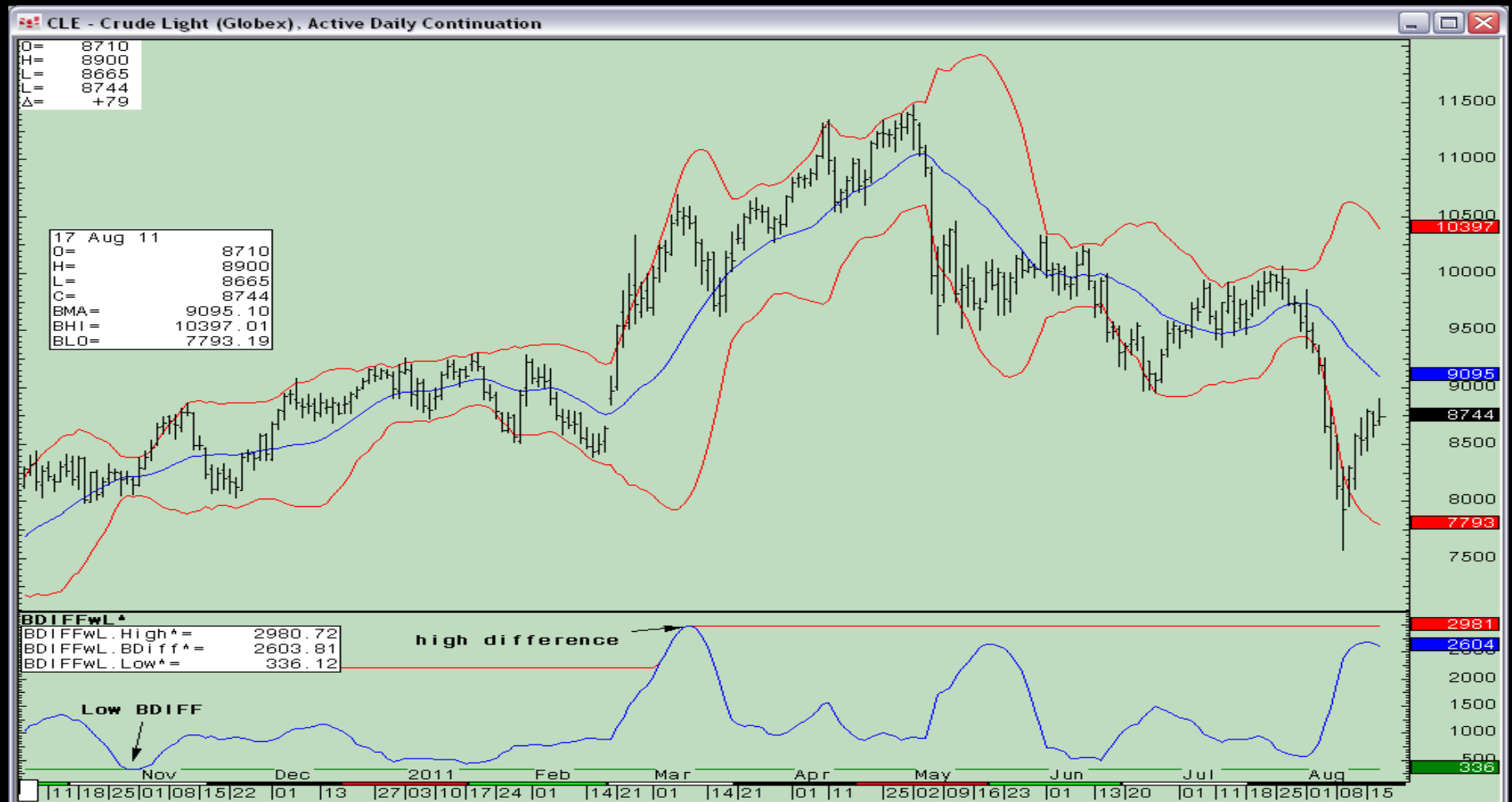
Directional Movement Index

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Bollinger Bands (BBnds)

- Bollinger Bands are a 20 bar moving average and two bands which represents 2 standard deviation above and below the moving average.
- The market will trade most of the time between the bands.
- The price at the lower band represents lower price and usually trades to the moving average or the higher band.
- The price at the higher band represents a high price and usually trades lower to the moving average or the lower band.
- Difference between the bands represents volatility.
- Low volatility, narrow band difference, represents an agreement by the traders that the price is at a level it ought to be at. Trader agreement.
- High volatility, wide band difference, represents a varied opinion of traders where the price should be at. Trader discord.

Bollinger and Bollinger Band Difference

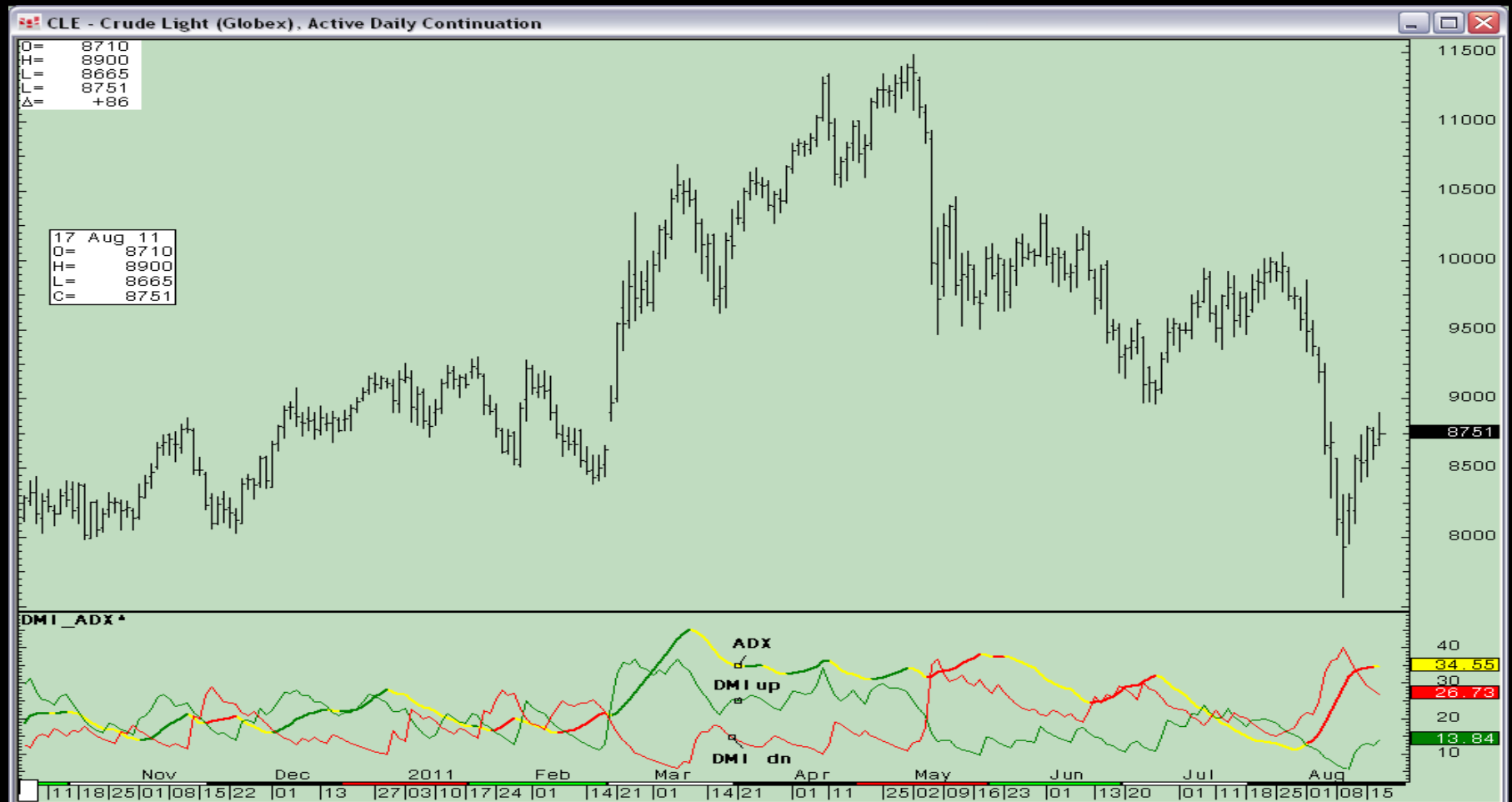


Directional Movement Index (DMI)

- Directional Movement Index is a Wells Wilder indicator.
- In a DMI study, two lines are generated: DMIu and DMId. The first line measures positive (upward) movement or buying pressure and the second number measures negative (downward) movement, reflecting selling pressure. The DMIu line crossing over the DMId line is interpreted as a buy signal, and the DMIu line crossing below the DMId line is considered a sell signal.
- Wilder also suggests that when a crossover occurs, the extreme price (the high or low made during the trading interval of the crossover) can be interpreted as a reversal point.
- This study is best used in any trending markets.

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DMI with ADX



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Volume and Open Interest

- Volume is the number of future contracts or shares of stocks which are sold in a trading session.
- We refer to sales because on the trading floor it was the seller who had to report the transaction to the exchange for trade matching.
- Open Interest is the number of futures contracts held open overnight.
- In futures there is not a finite number of contract like there is in the equities market. If you have a willing buyer and a willing seller, you create a new contract and increase open interest.

Volume and Open Interest

Price	VOL & O.I.	Market
Up	Up	Strong
Up	Down	Weak
Down	Up	Strong
Down	Down	Weak

Changes in Open Interest

Buyers	Sellers	Open Interest
Buys new long	Sells new short	OI increases
Buys new long	Sells old long	OI unchanged
Buys old short	Sells new short	OI unchanged
Buys old short	Sells old long	OI decreases

Candlestick Formations

One Candle Formation	Two Candle Formations	Three Candle Formations
▪ Hammer (HR) ▪ Hanging Man (HM) ▪ Inverted Hammer (IH) ▪ Shooting Star (SS)	▪ Engulfing Bearish (EG) ▪ Engulfing Bullish (EG) ▪ Dark Cloud (DC) ▪ Double Doji (DD?) ▪ Harami Bearish (HI) ▪ Harami Bullish (HI) ▪ Piercing Line (PL)	▪ Morning Star (MS) ▪ Morning Doji Star (MDS) ▪ Evening Star (ES) ▪ Evening Doji Star (EDS)

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Candlestick Formations



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