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Introduction to Technical Analysis

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Technical versus Fundamental

- Technical
- Analysis of internals
  - Price
  - Volume
  - Pattern
  - Support
  - Resistance
  - Recognition

- Fundamental
- Analysis of externals
  - Economy
  - Management
  - SWOT
    - Strengths
    - Weakness
    - Opportunities
    - Threats
  - Buy/ Sell recommendation

Technical versus Fundamental

- Fundamental analysis leads to price predictions using valuation ratios
- Technical analysis uses trend and pattern recognition to predict prices

What's in a Chart?

- Charts show the price performance of an underlying asset or security
- Get overview with at least a 6 month picture
- Consider your timeframe carefully
- Charts express prices as lines, bars or candlesticks

Chart Types

- Trader Work Station (TWS) displays prices as a:
  - Line
    - Joins closing prices between each specified timeframe
  - Bar
    - Uses an open/high/low/close convention
  - Candlestick
    - More weight attached to session direction
  - Volume and Open Interest
    - Analyst pays attention to the volume associated with move within a given session

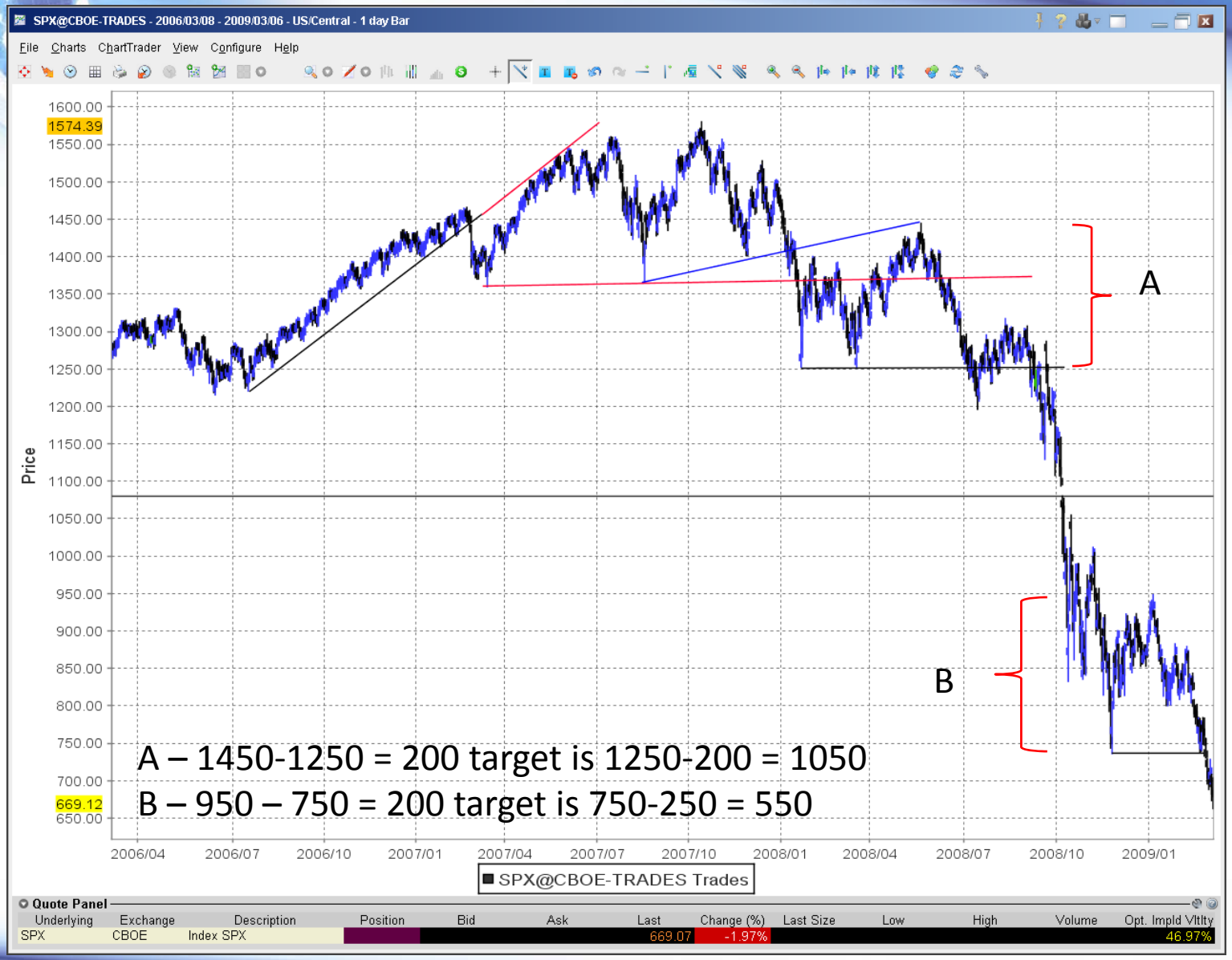
What's the Aim?

- Define the big picture trend – if there is one
- Compare health of underlying to a benchmark
- Search for shorter-term opportunities
- Understand the likelihood of immediate up or down movement
- Define range
- Establish entry or exit points
- Determine warning signs of a breach of trend or a pattern reversal

Trendlines

- Straight line joining two or more price points
- Support line depicts upward trend
- Resistance depicts an area above current price that investors may find hard to breach
- Both can be horizontal lines
- Investors may eyeball the trend

Trendlines


SPX@CBOE-TRADES - 2006/03/08 - 2009/03/06 - US/Central - 1 day Bar
File Charts ChartTrader View Configure Help
Price
1600.00
1574.39
1550.00
1500.00
1450.00
1400.00
1350.00
1300.00
1250.00
1200.00
1150.00
1100.00
1050.00
1000.00
950.00
900.00
850.00
800.00
750.00
700.00
669.12
650.00
A
B
A – 1450-1250 = 200 target is 1250-200 = 1050
B – 950 – 750 = 200 target is 750-250 = 550
2006/04 2006/07 2006/10 2007/01 2007/04 2007/07 2007/10 2008/01 2008/04 2008/07 2008/10 2009/01
SPX@CBOE-TRADES Trades
Quote Panel
Underlying Exchange Description Position Bid Ask Last Change (%) Last Size Low High Volume Opt. Impld Vltlty
SPX CBOE Index SPX 669.07 -1.97% 46.97%

S&P 500 index – overhead resistance

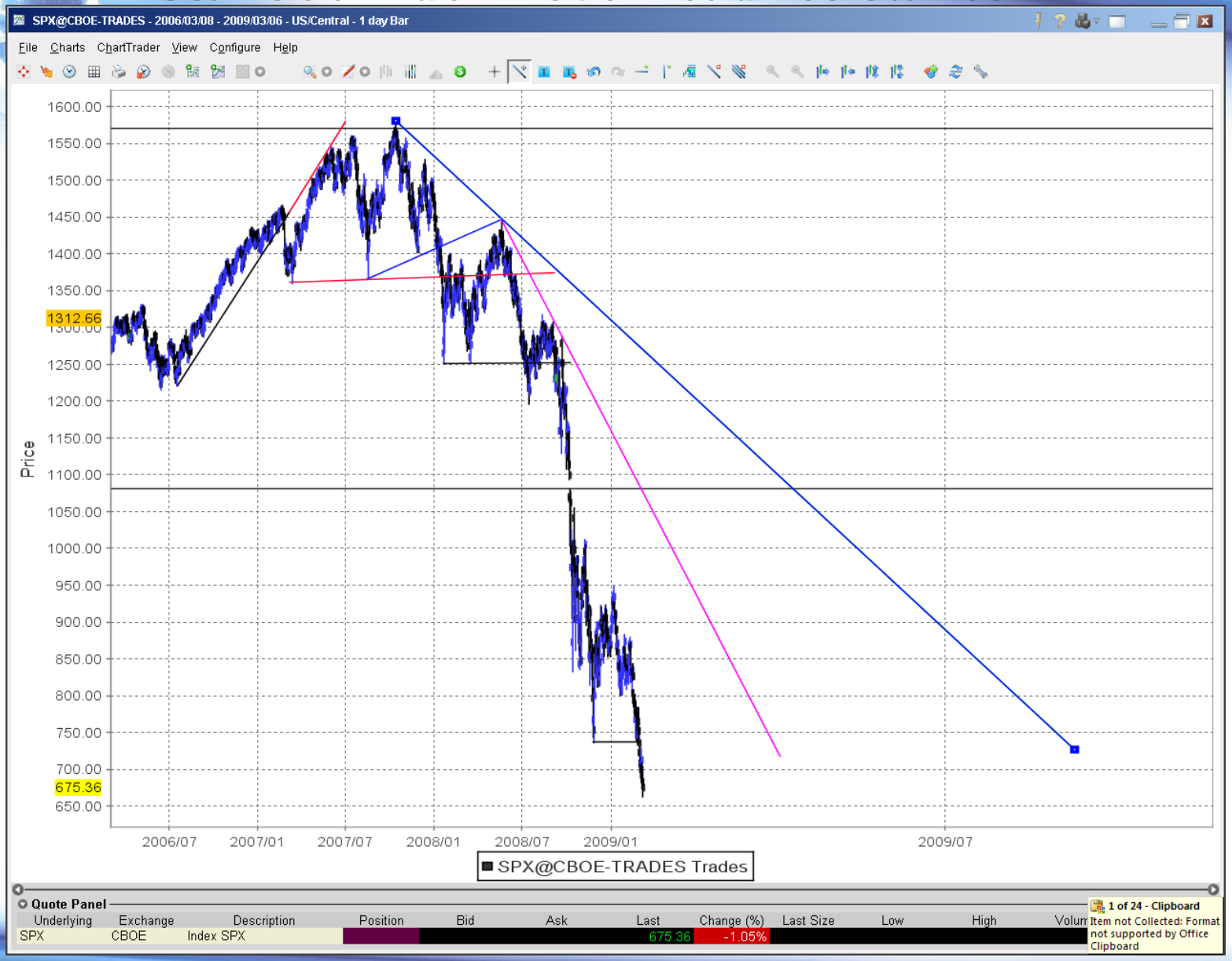
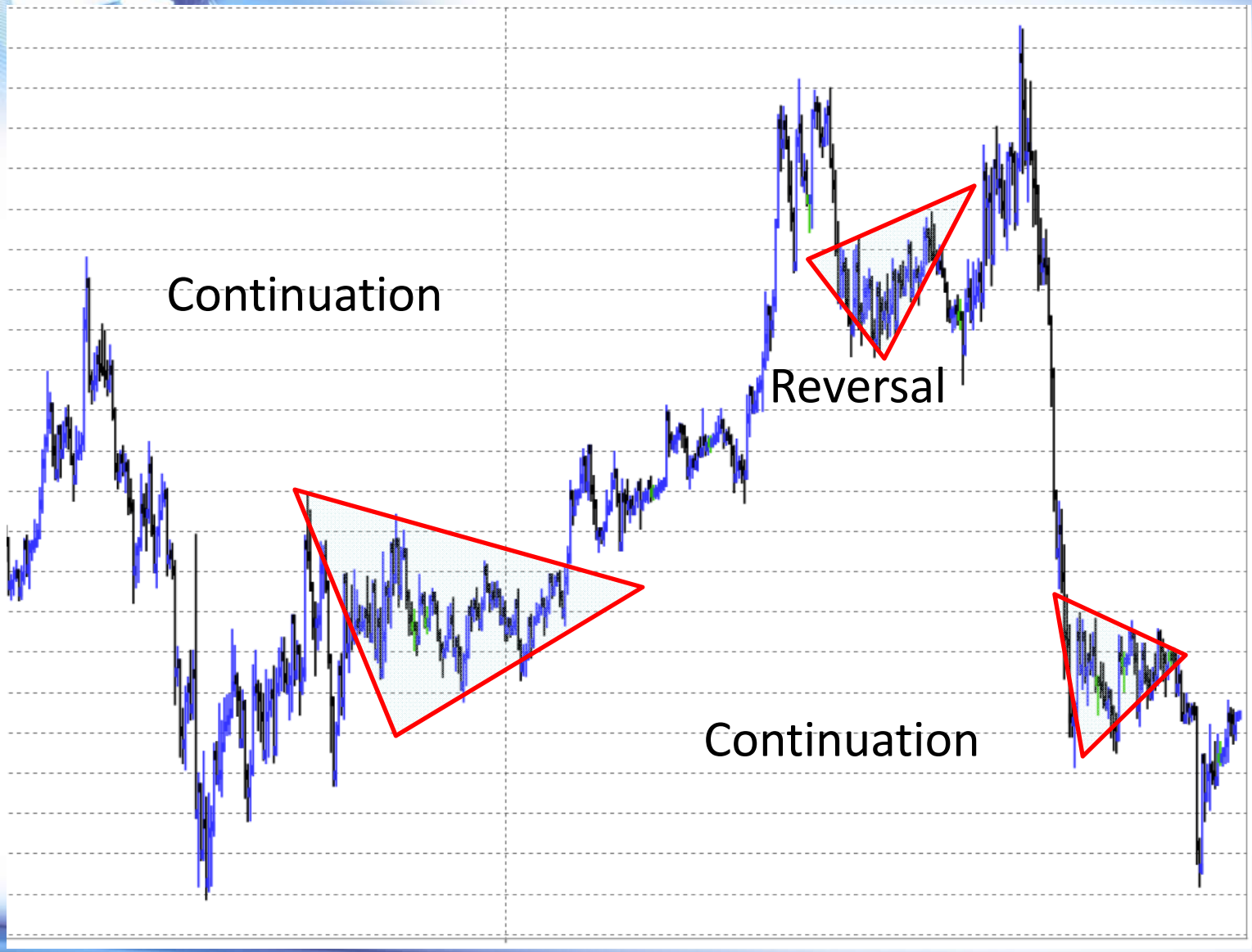
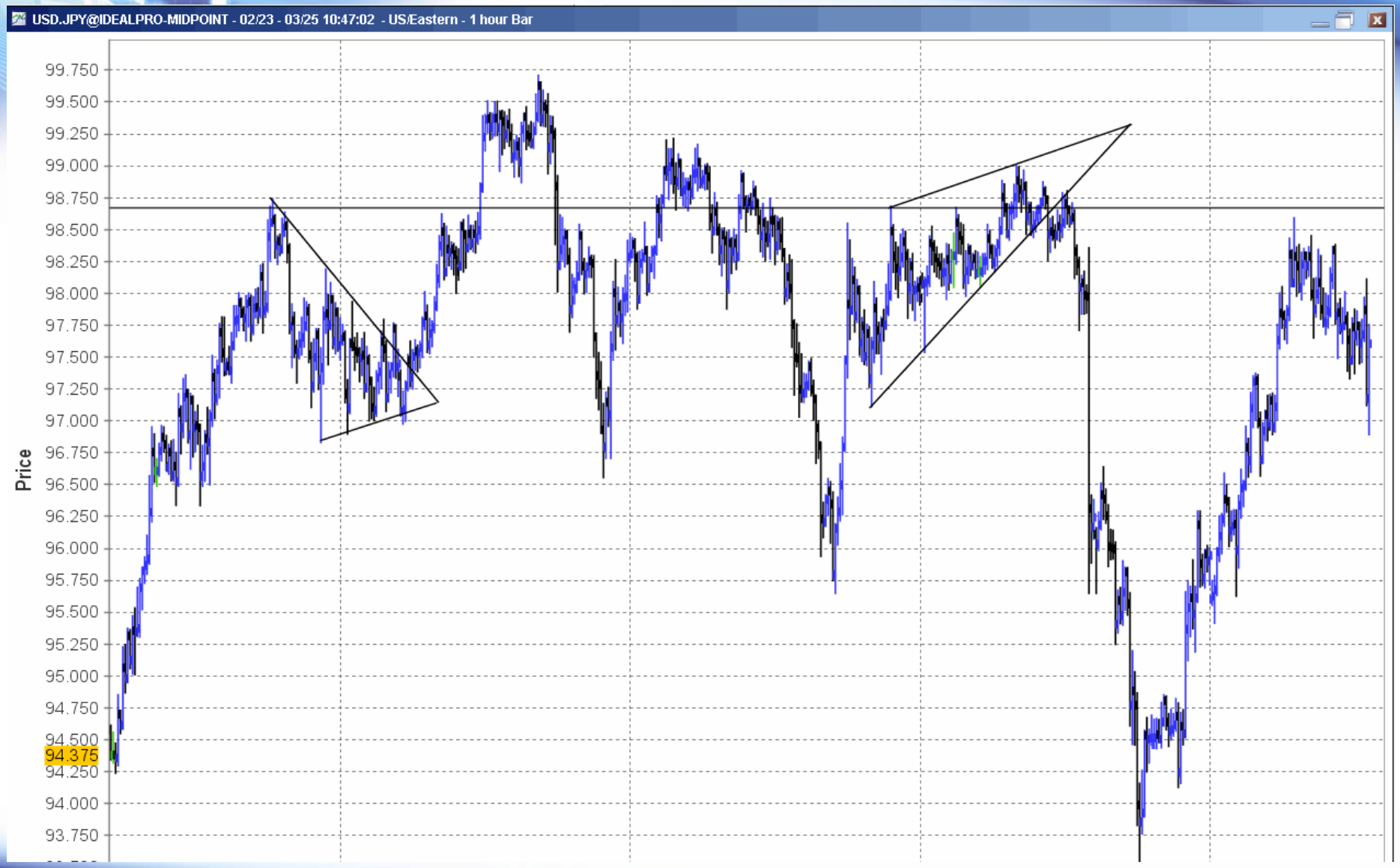


Chart Patterns

- Trendlines show prevailing up or down trend
- Parallel lines depict 'trading channel'
- Patterns emerge
  - Continuation
  - Reversal
    - Triangle
    - Head & shoulders
    - Wedge
    - Pennant & flags


Continuation
Reversal
Continuation

Wedge


USD.JPY@IDEALPRO-MIDPOINT - 02/23 - 03/25 10:47:02 - US/Eastern - 1 hour Bar
Price
99.750
99.500
99.250
99.000
98.750
98.500
98.250
98.000
97.750
97.500
97.250
97.000
96.750
96.500
96.250
96.000
95.750
95.500
95.250
95.000
94.750
94.500
94.375
94.250
94.000
93.750

Pennants and Flags

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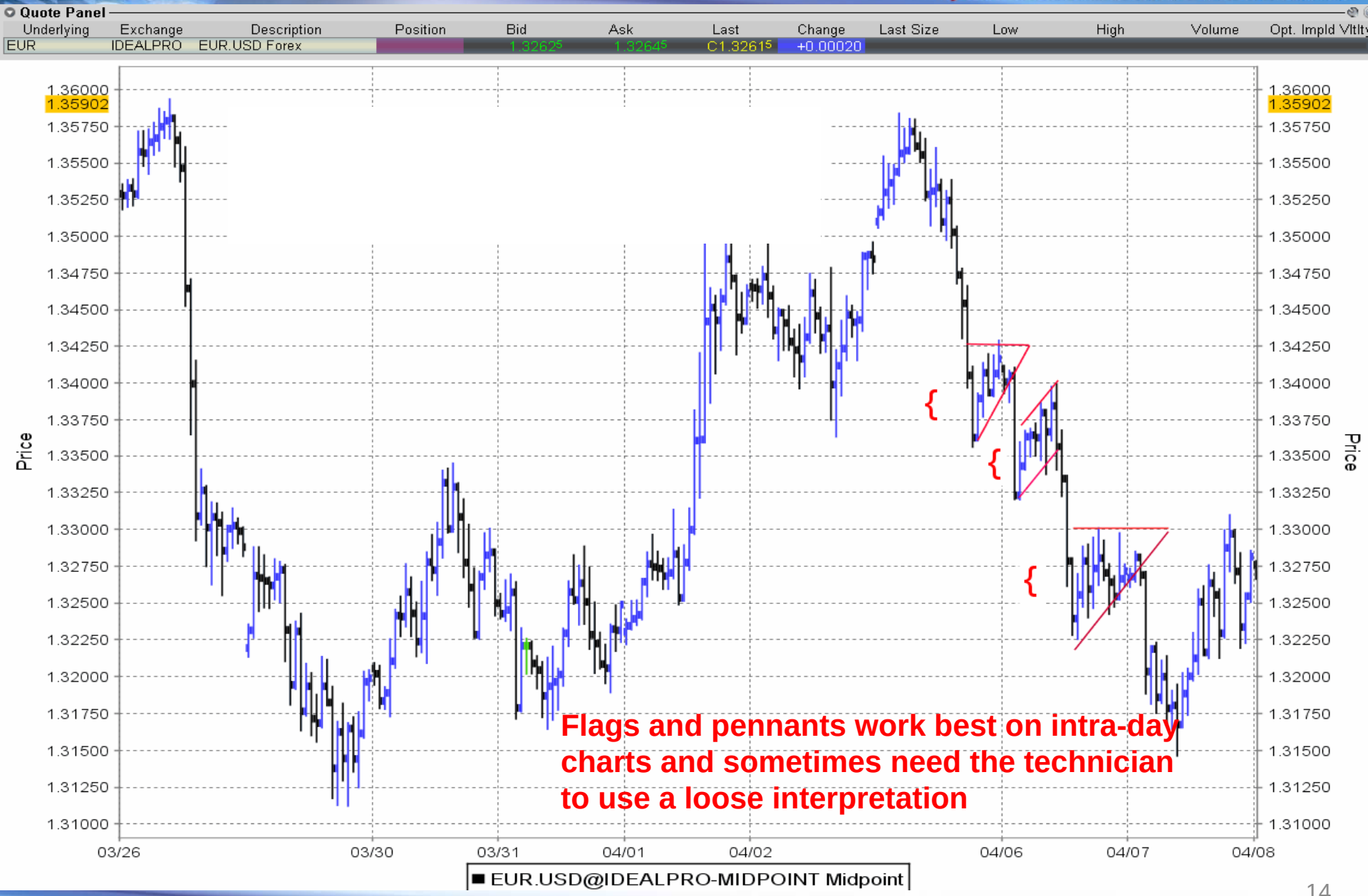
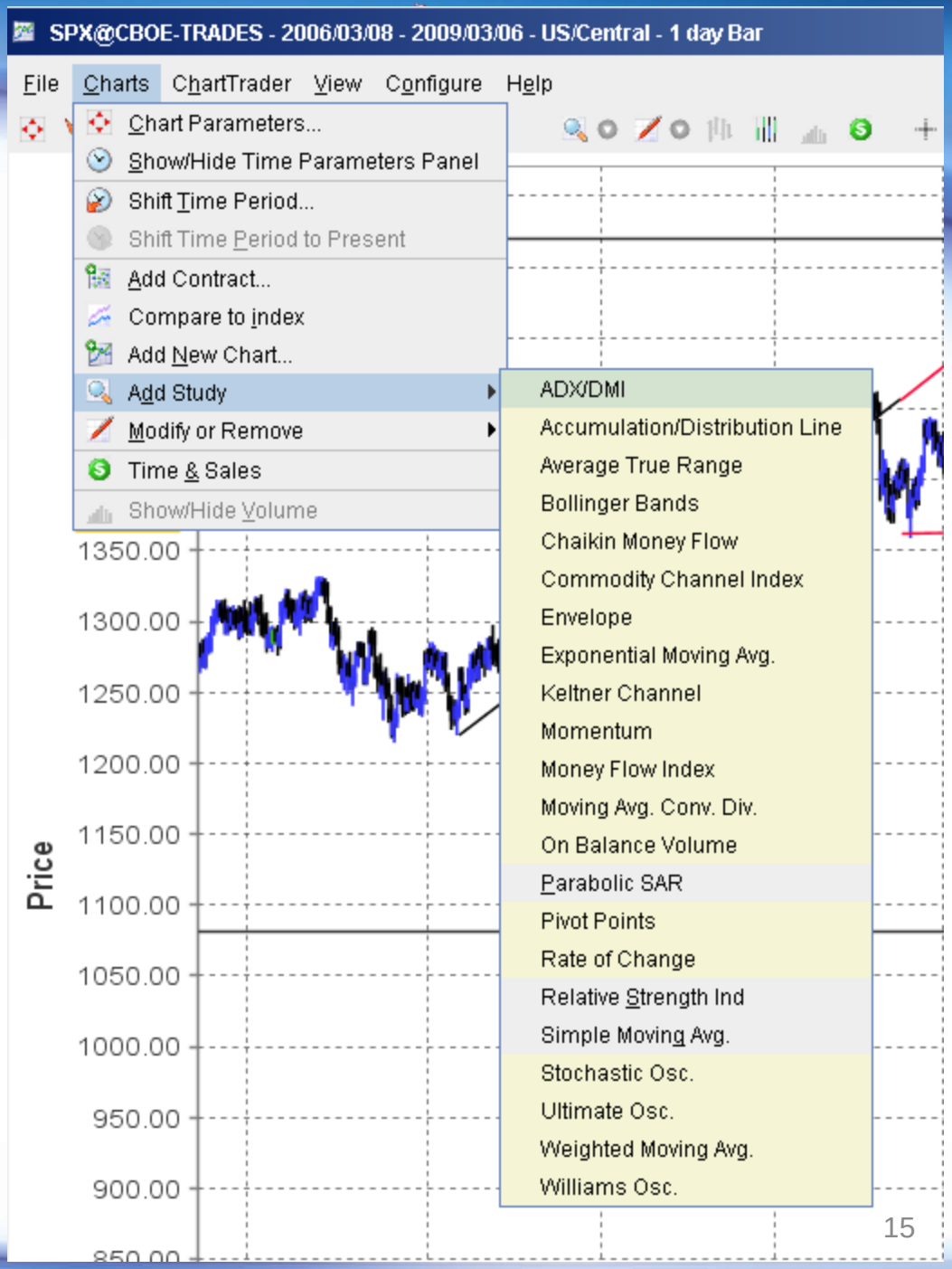


Flags and pennants work best on intra-day charts and sometimes need the technician to use a loose interpretation

Studies

- TWS has a variety of commonly used technical indicators
- Within a chart, select “Charts” and “Add Study”
- For brief description of any study, use the search box on the IB website



Moving Averages

- One of the simplest forms of analysis
- Compares average price for x days against a shorter period of y days
- Buy when more sensitive shorter moving average rises faster than longer period
- Sell when shorter moving average falls faster than longer period
- Different securities, indices and instruments require different length of data (one size does not fit all)
- Common periods are 5, 9, 21, 50, 90 and 200

File Charts ChartTrader View Configure Help
Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld V
JPM SMART Stock (NYSE) 27.81 27.82 27.82 -1.46 1 27.72 28.90 42.986M 88.1
9 period moving average
21 period moving average
Sell
Buy
Sell
Buy
Sell
Buy
Sell
Buy
Sell
Buy
Sell
Buy
Price
50.00
47.50
44.89
42.50
40.00
37.50
35.00
32.50
30.00
27.50
25.00
22.50
20.00
17.50
15.00
2008/07
2008/10
2009/01
2009/04
JPM@SMART-TRADES Trades
SMA(9) JPM@SMART-TRADES Trades
SMA(21) JPM@SMART-TRADES Trades

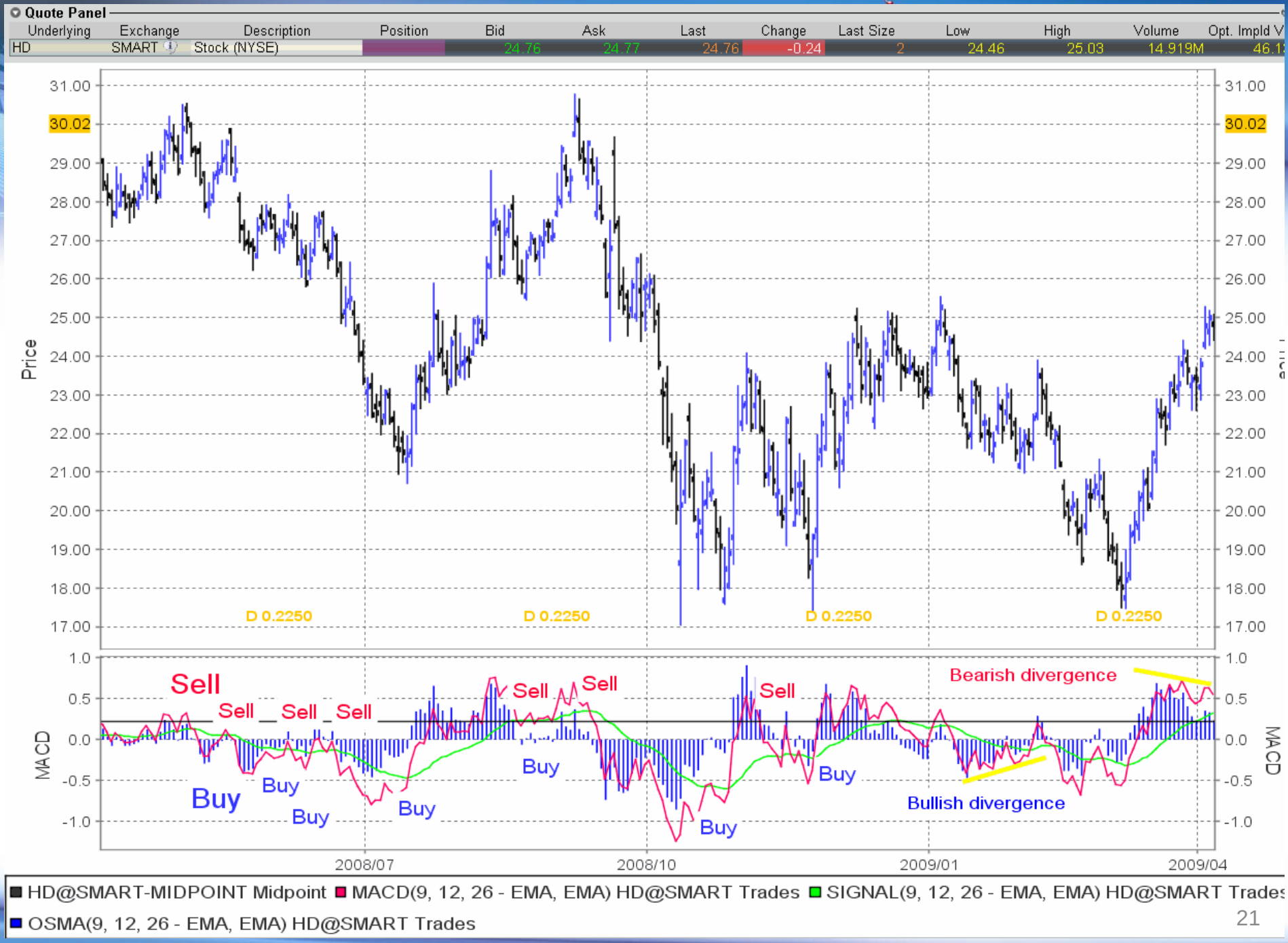
ADX/DMI

- Strength of trend indicator
- Uses two filters (DMI+ and DMI-)
- The net of these two values is smoothed to create Average Directional Index
- This index rises to confirm trending prices
- ADX returns values 0-100
- Optimal performance when ADX is between 20-40

Quote Panel
Print...
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vlt
AA SMART Stock (NYSE) 8.01 8.03 8.03 +0.24 5 7.50 8.16 74.984M 85.37
Price
45.00
43.58
42.50
40.00
37.50
35.00
32.50
30.00
27.50
25.00
22.50
20.00
17.50
15.00
12.50
10.00
7.50
5.00
The only important value in the study is the bold blue line in the study box.
When ADX passes a reading of 20 and keeps rising, a trend is in place. This is true for both up and down trends.
D 0.17
D 0.17
D 0.17
D 0.17
ADX/DMI
75
50
25
0
2008/07
2008/10
2009/01
2009/04
AA@SMART-TRADES Trades
DI+(9) AA@SMART-TRADES Trades
DI-(9) AA@SMART-TRADES Trades
ADX(9) AA@SMART-TRADES Trades

MACD

- Moving Average Convergence Divergence
- Employs exponential moving averages
- Subtracts longer moving average from shorter moving average to create MACD
- Uses an even shorter exponential moving average to create 'signal line'
- MACD passing up and down through signal line generates buy and sell signals
- MACD minus signal also creates histogram – also a reliable technical indicator


Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld V
HD SMART Stock (NYSE) 24.76 24.77 24.76 -0.24 2 24.46 25.03 14.919M 46.1
Price
31.00
30.02
29.00
28.00
27.00
26.00
25.00
24.00
23.00
22.00
21.00
20.00
19.00
18.00
17.00
D 0.2250
D 0.2250
D 0.2250
D 0.2250
MACD
1.0
0.5
0.0
-0.5
-1.0
Sell
Sell
Sell
Sell
Sell
Sell
Sell
Sell
Buy
Buy
Buy
Buy
Buy
Buy
Buy
Bearish divergence
Bullish divergence
2008/07
2008/10
2009/01
2009/04
HD@SMART-MIDPOINT Midpoint
MACD(9, 12, 26 - EMA, EMA) HD@SMART Trades
SIGNAL(9, 12, 26 - EMA, EMA) HD@SMART Trades
OSMA(9, 12, 26 - EMA, EMA) HD@SMART Trades

Parabolic SAR

- Stop and Reverse
- May depict the current "trend"
- Initially established as a point at which prevailing position should be closed
- Rising dots below price are long exits
- Falling dots above price are short exits

Quote Panel

Underlying	Exchange	Description	Position	Bid	Ask	Last	Change	Last Size	Low	High	Volume	Opt. Impld Vltlty
HD	SMART	Stock (NYSE)		24.85	24.86	24.86	-0.14	1	24.46	25.03	15.668M	45.91%

Pivot Points

- TWS creates two resistance points above price
- Two support prices below price
- Both use previous days high, low and closing prices
- Pivot point is calculated using a five-point system
- Some traders use these to cluster buy and sell orders for day trading
- Need to know when either is giving way

Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vltl
HD SMART Stock (NYSE) 24.71 25.02 24.85 -0.15 7 24.46 25.03 16.993M 45.78%
Use the crosshair key to create the dialogue box from where you can read current value of pivot's central value plus two support values and two resistance prices
06/02/08 (09:30:00-16:00:00) US/Eastern
HD@SMART-MIDPOINT Midpoint
High: 27.610
Low: 26.805
Open: 27.610
Close: 27.130
Time Avg:27.115
Pivot point HD@SMART-MIDPOINT Midpoint (R2)
Value:27.92
Pivot point HD@SMART-MIDPOINT Midpoint (R1)
Value:27.645
Pivot point HD@SMART-MIDPOINT Midpoint (PP)
Value:27.5
Pivot point HD@SMART-MIDPOINT Midpoint (S1)
Value:27.225
Pivot point HD@SMART-MIDPOINT Midpoint (S2)
Value:27.08
Price
2008/07
2008/10
2009/01
2009/04
HD@SMART-MIDPOINT Midpoint
Pivot point HD@SMART-MIDPOINT Midpoint (R2)
Pivot point HD@SMART-MIDPOINT Midpoint (R1)
Pivot point HD@SMART-MIDPOINT Midpoint (PP)
Pivot point HD@SMART-MIDPOINT Midpoint (S1)
Pivot point HD@SMART-MIDPOINT Midpoint (S2)

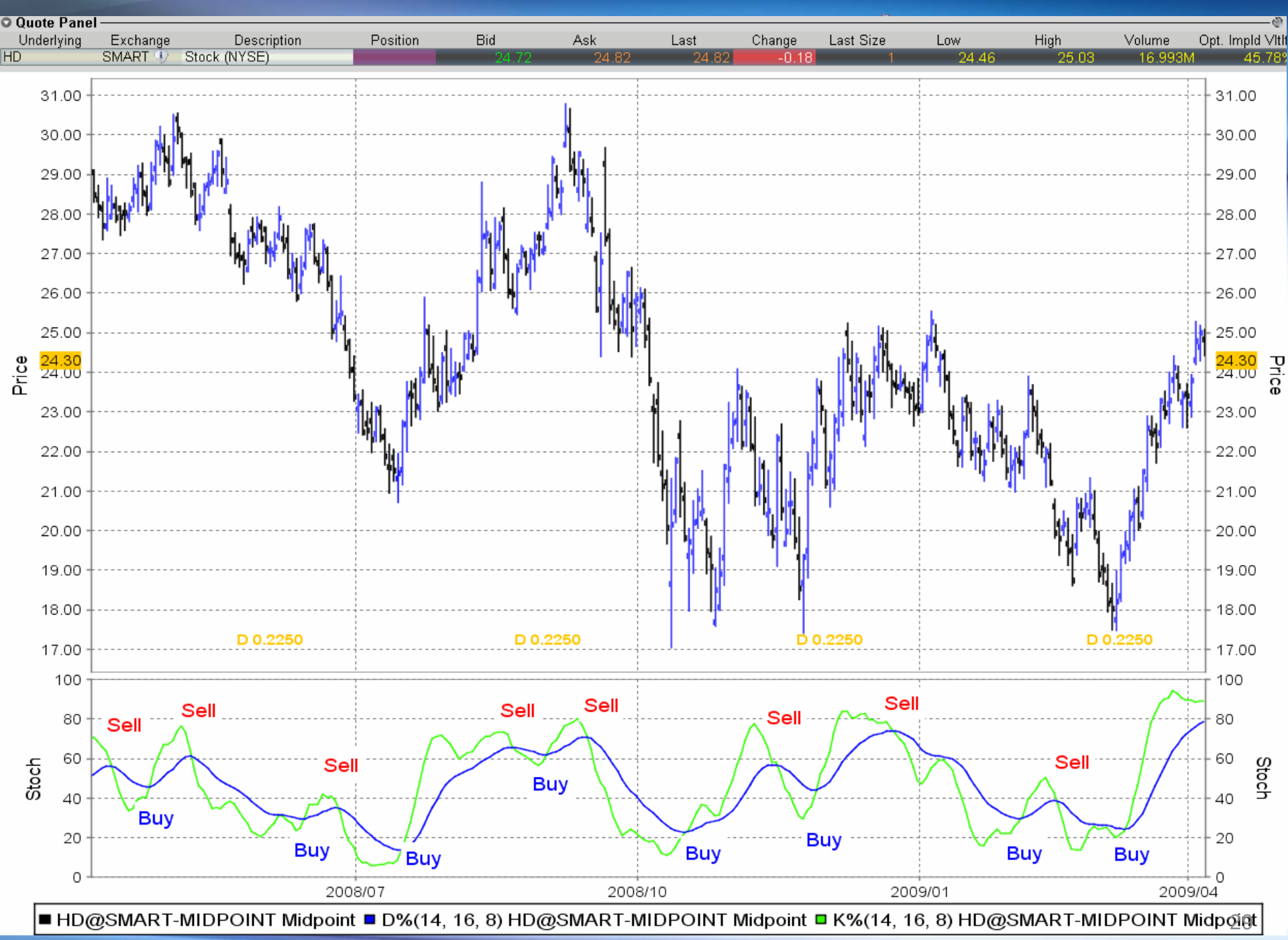
Relative Strength Indicator (RSI)

- Looks at a set of user-defined data and compares number of up bars versus down bars to create an index
- Indicator oscillates between 0-100 and confirms market strength
  - Overbought readings range between 80-100
  - Oversold readings range 0-20
- Warning: Some of the best moves occur in these ranges!
- Useful for finding divergence between price and RSI to show false moves

Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vltlt
HD SMART Stock (NYSE) 24.71 24.91 24.85 -0.15 7 24.46 25.03 16.993M 45.78%
The RSI reading here shows several examples of bull and bear divergence, which argue for reversal of price pattern.
Note in this example that RSI never becomes either oversold or overbought
Price
RSI
D 0.2250
D 0.2250
D 0.2250
D 0.2250
?
2008/07
2008/10
2009/01
2009/04
HD@SMART-MIDPOINT Midpoint
RSI(9) HD@SMART-MIDPOINT Midpoint

Stochastic Oscillator

- Creates two lines - %k and %d
- %k - looks at most recent closing price and compares to the lowest reading from a specified range and divides by overall period range
- %d – moving average of %k
- Buy and sell indications occur when %k crosses %d
- Again useful for confirmation of price action at lows (highs)


Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vlt
HD SMART Stock (NYSE) 24.72 24.82 24.82 -0.18 1 24.46 25.03 16.993M 45.78
Price
Stoch
D 0.2250
Sell
Buy
2008/07
2008/10
2009/01
2009/04
HD@SMART-MIDPOINT Midpoint
D%(14, 16, 8) HD@SMART-MIDPOINT Midpoint
K%(14, 16, 8) HD@SMART-MIDPOINT Midpoint

On Balance Volume

- Volume is a key component to trend development
- Creates a single line below the chart to show cumulative volume allowing for price direction
- Daily volume is ADDED when price closes up
- Volume total is SUBTRACTED when prices fall
- Use to gauge whether higher volume is supporting up or down trend
- Drawback is price settlement

Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vltlt
AA SMART Stock (NYSE) 8.03 8.04 8.03 +0.24 2 7.50 8.16 74.983M 85.37%
Price
Alcoa's share price fell from $45 to $5.00.
All the way down, OBV broadly declined - but look at the recent surge in buying interest as shares have rebounded
D 0.17
OBV
2008/07
2008/10
2009/01
2009/04
AA@SMART-TRADES Trades
OBV AA@SMART-TRADES Trades

Accumulate/Distribution

- Enhanced version of OBV
- Doesn't consider daily price change
- Focus on location of close relative to range of closes before adding or subtracting day's volume total
- AD line should follow prices
  - Cumulative buying should see line rise
  - Selling en masse should see line decline
- Looking for divergence between declining prices and accumulation of volume

Quote Panel
Underlying Exchange Description Position Bid Ask Last Change Last Size Low High Volume Opt. Impld Vltlty
AA SMART Stock (NYSE) 8.03 8.04 8.03 +0.24 2 7.50 8.16 74.983M 85.37%
Price
45.00
42.50
40.00
37.50
35.00
32.50
30.00
27.50
25.00
22.50
20.00
17.50
15.00
14.03
12.50
10.00
7.50
5.00
D 0.17
D 0.17
D 0.17
D 0.17
OBV
0
-2,500,000
-5,000,000
-7,500,000
OBV earlier to signal falling interest
A/D Line
1,000,000
0
-1,000,000
-2,000,000
-3,000,000
A/D line slower to portray accumulating selling pressure
but faster to indicate revival of buying
2008/07
2008/10
2009/01
2009/04
AA@SMART-TRADES Trades
OBV AA@SMART-TRADES Trades
A/D Line AA@SMART-TRADES Trades

Fibonacci Numbers

- Series of mathematical relationships
- Technician believes that history will repeat itself
- Prices move in predictable waves after a move has been established
- Key retracement points:
  - 23.6%
  - 38.2%
  - 50%
  - 61.8%
  - 76.4%

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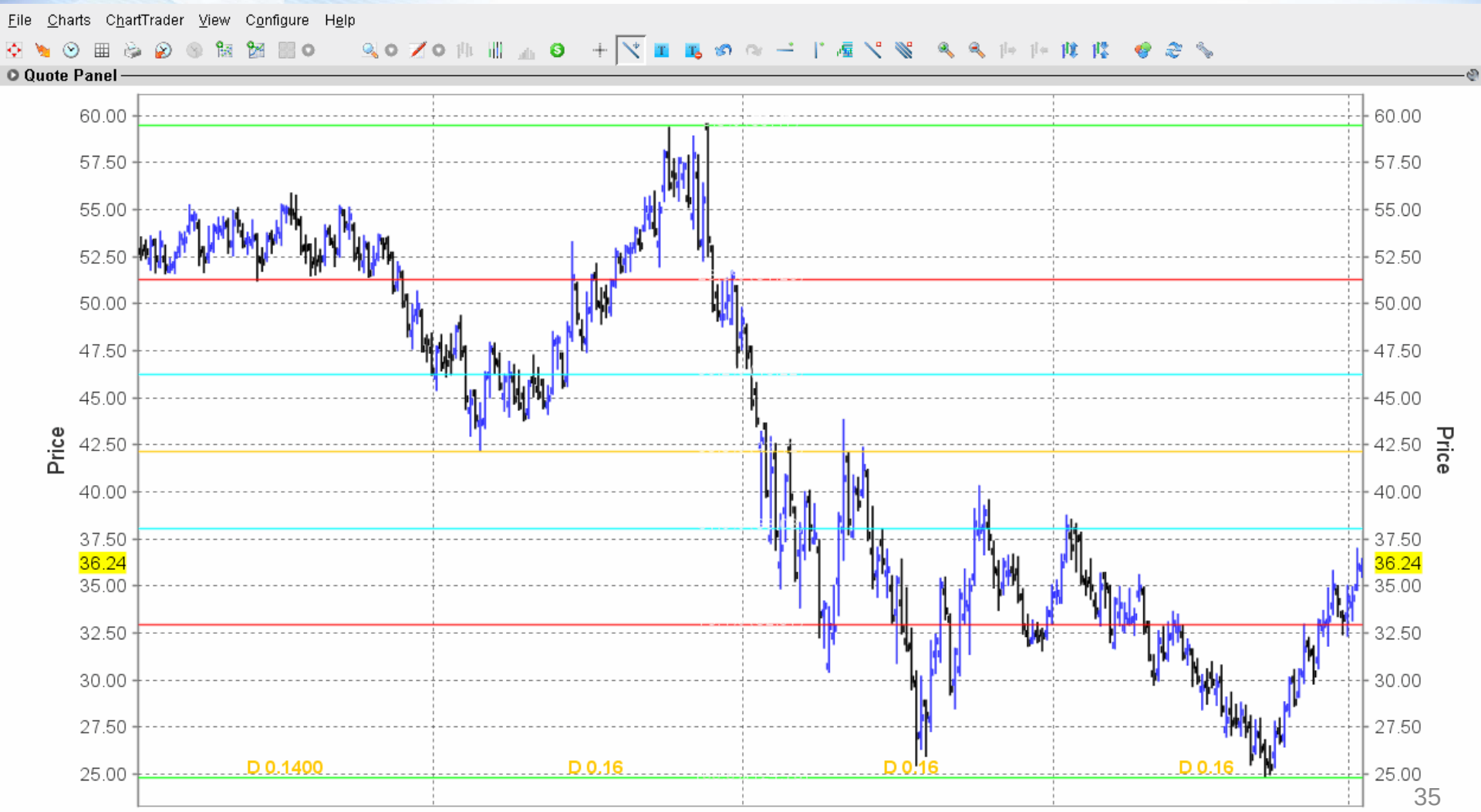
Fibonacci Numbers



Conclusion

- Technical analysis is the study of prices
- Chartist identifies patterns to make predictions
- Patterns can be numerically evaluated and give rise to numerous studies
- Valuable work, but you must be prepared to apply various studies to different asset classes and time frames

Questions?