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TECHNICAL ANALYSIS HANDBOOK

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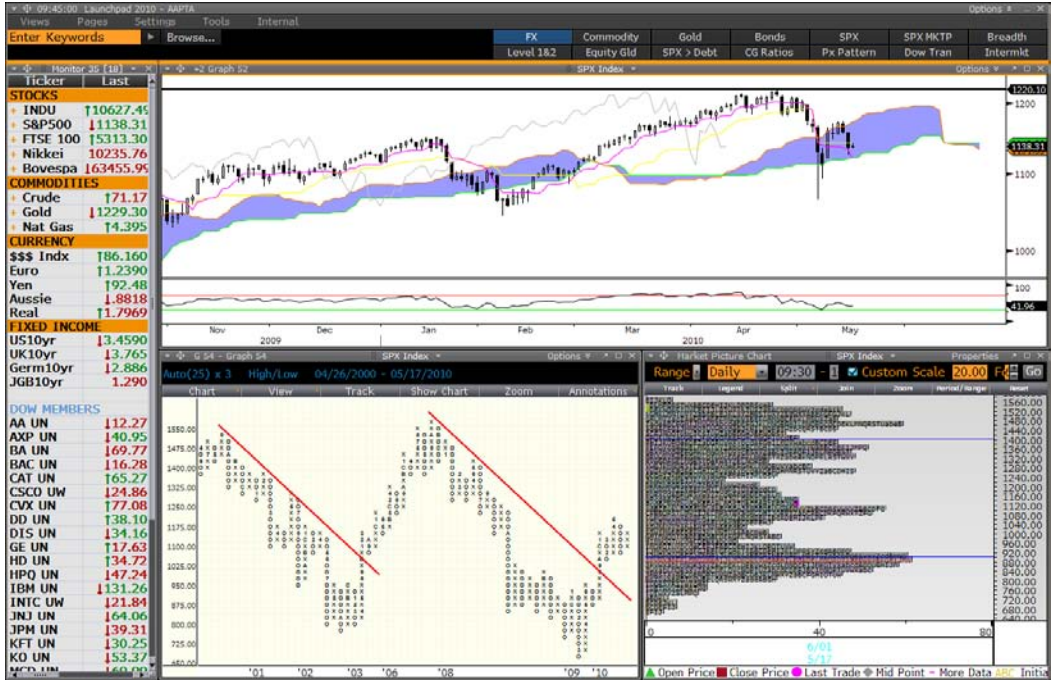
Bloomberg

LAUNCHPAD 2010 LPAD<GO>



INTRODUCTION

There are two principles of analysis used to forecast price movements in the financial markets -- *fundamental analysis* and *technical analysis*. Fundamental analysis, depending on the market being analyzed, can deal with economic factors that focus mainly on supply and demand (commodities) or valuing a company based upon its financial strength (equities). Fundamental analysis helps to determine what to buy or sell. Technical analysis is the study of market action through the use of charts to forecast future trends. Technical analysis helps to determine when to buy and sell.

Technical analysis has been used for hundreds of years. It can be applied to any market, an advantage over fundamental analysis. Technicians believe that the study of market action will tell all and that each and every fundamental aspect will be revealed through the actions of investors entering or exiting positions. Market action includes many sources of information -- *price*, *volume*, *open interest, and volatility*. Technical analysis is based upon three main premises;

1) Market action discounts everything
2) Prices move in trends
3) History repeats itself

This manual is designed to help introduce the primary technical indicators that are available on the BLOOMBERG PROFESSIONAL® service. Each technical indicator is presented using the suggested settings developed by the creator, but can be altered to reflect the users' preference. For example the Relative Strength Index or RSI defaults to a 14-day look-back period, as the creator Welles Wilder used, but a 9-day RSI is considered by many to be the most useful when analyzing stocks. To change the default values permanently, type **TDEF <GO>.** This will provide you with the ability to change the settings for most of your charts on Bloomberg.

To design charts with multiple studies, settings, and customization, you'll find the most value in G<GO>. The main menu or "yellow key" for custom charting is GRAPH<GO>, of which G<go> is accessible via the column on the left.

Technical analysis has been proven to be an effective tool for investors and is constantly becoming more accepted by market participants. When used in conjunction with fundamental analysis, technical analysis can offer a more complete valuation, which can make the difference in executing profitable trades.

For more detailed literature on technical analysis, two recommended textbooks are: *Technical Analysis of the Financial Markets*, John J. Murphy and *Technical Analysis Explained*, Martin J. Pring, 3rd Edition.

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Additional suggested educational documents can be found under **GEDU<GO>** and include:

Cheatsheet: Technical Analyst
Demystifying the Fear and Greed indicator
Tracking Price with Bloomberg Trender
Using Erlanger Put Call Ratio
Using Erlanger Trend Direction
Ichimoku Charting
Fibonacci Explained
Volume Bar Distribution
Market Picture

CHARTS HOMEPAGE GRAPH<GO>

If a keyboard had a thirteenth “F” key, then GRAPH<go> might just be the main page where that yellow key would bring you. This function divides your charting needs into five primary sections.

The first is all of the custom charts you have created in your login. The second is a section of sample charts that can be saved to your login and modified. The third is the chart showcase which shows some of the new charting analytics we have released. The fourth is the Chart Resource section with links to cheat sheets, the Bloomberg Technical Strategy Research document, and upcoming seminars. Lastly, at the bottom of the page is the Chart of the Day newswire where Bloomberg’s award winning news division publishes interesting relationships spotted in the financial markets using charts. Get in the habit of typing GRAPH<go> for all of your charting needs.

For more information about technical studies on Bloomberg, press G <GO>, press <Help>, click option 6 for Related Information, click Technical Studies. For more technical analysis documents, type GEDU<GO>.

CHARTS HOMEPAGE

GRAPH

CUSTOM CHARTS G<GO>

On the top left hand side of GRAPH<GO> is a link to your custom charts. This function can be accessed directly through G<GO>. A “G” chart is something you can create, customize, share, save and use everyday based on your preferences, trading strategies and analysis. By using G<GO>, you can create an unlimited number of charts representing different relationships, showing various technical studies, and much more.

The image on page 5 represents the “Folder” view within G. If yours doesn’t look like this, click the red button at the top of G<GO> that says “Show Folders.” Now you can create folders and save as many charts as you wish to track and represent the market. In this image, we are currently looking at the charts in the “Daily” folder. These charts are all a period of daily for about one year and have various studies on them. Other folders like spreads have saved charts of the US Government Bond spreads along with other markets like equity indices, currencies, and commodities. The sky is the limit.

CUSTOM CHARTS G<GO>

CUSTOM CHART TYPES G<GO>

Type **G <GO>**, you will see a list of custom charts in your login. To create a new chart, type 1 <GO> from this screen then select a chart type:

Single Security Historical/Intraday
Design a custom bar/candle chart with multiple technical indicators and events.

Multiple Security Historical/Intraday
Chart up to twenty securities, spreads, or ratios on the same chart as line, bar, candle or HLC bands. Compare performance across sectors or asset classes, identify value within a peer group, or use breadth indicators to gauge market sentiment.

Single Security Seasonality - Break down the cyclical nature of certain markets.

Scrolling Tick Chart – Display every trade, bid, and ask that ticks for a security.

Point and Figure Chart – Create multiple charts with different box and reversal sizes and also save annotations

Chart Templates – Browse and copy more than 100 sample templates into your **G <GO>**.

CUSTOM CHARTS G, GRAPH

LINE CHARTS GP, GIP

Line charts are considered the quickest and simplest way to analyze the overall trend. If you don't need or want to know or see open, high and low data, then this is the chart type for you. The presentation of a line chart is clean and precise, perfect for those who prefer simplicity.

Below is a chart of DOE Crude Oil Total Inventory Data for the last five years. We can quickly and easily see that inventory levels in 2009 were at a five year high. We could look at more history by changing the range from "12/31/04" to maybe "12/31/00." If we did so, we'd see they were still at all time highs.

Different security types have different options listed in the chart dashboard. The amber fields below the red toolbar allow you to customize the date range, modify the data being shown on the price chart, add moving averages, add other data sets like volume, open interest, and total option volume, and add a moving average to those data sets.

LINE CHARTS

GP, GIP

BAR CHARTS GPO, IGPO

A bar chart displays price action over a period of time.

Each vertical bar represents one period of price activity from the chosen periodicity. Values can be based upon daily, weekly, monthly, quarterly or yearly data for historical charts and as low as minute intervals for intraday charts. On a daily chart, the vertical line of the bar represents the trading range for the given day. The top of the bar represents the high price of the day and the bottom of the bar represents the low price of the day. The left hash or tick mark on the vertical bar indicates the opening price and the right mark on the bar indicates the closing price. By including open, high, low and close information, bar charts allow for more detailed analysis than standard line charts through pattern formation analysis.

The dashboard at the top of the GPO page allows you to modify the period/range of data on the chart, change the display of the upper and lower panel, add moving averages to both panels, and also modify the currency the security is quoted in.

The thin grey toolbar on the price chart is home to many other popular features such as an annotations palette, news, zooming, and more.

To set your defaults for GPO, type **TDEF <GO>.**

BAR CHARTS GPO, IGPO

CANDLE CHART GPC, IGPC

A candle chart is designed to clarify price action even more than a bar chart.
Each candlestick represents one period of price activity from the chosen periodicity. Values can be based upon daily, weekly, monthly, quarterly or yearly data for historical charts and minute intervals for intraday charts. For a daily chart, the candlestick represents one day's trading range and is color coded to display an up or down day. A candle shown without color represents a higher close than the open. A candle shown filled with a color, such as blue, represents a lower close than the open. These color settings are optional.

Each candlestick drawn consists of two components: the *real body* and the *shadow.* The *real body* is the thick part of the candlestick that represents the open and the close. The thin lines above and below the real body are the *shadows*. These shadows represent the session's price extremes. The shadow above the real body is called the *upper shadow*, which measures the high of the session. The shadow below the real body is called the *lower shadow,* which measures the low of the session. For more on candle pattern analysis, see DOCS 2050569<go> on your Bloomberg Terminal

To set your defaults for GPC, type **TDEF <GO>.**

CANDLE CHART GPC, IGPC

LOGARITHMIC CHART G, GPL

A logarithmic chart has a scale that is based on percent moves.
Most charts use an arithmetic price scale, meaning equal distances on the Y-axis represent equal changes in value. On a logarithmic chart, equal distances represent equal percent changes. That is, one inch on the y-axis represents the same percentage change.

A log chart tends to be a more effective representation of price movement over time, particularly those with significant price appreciation or depreciation. The longer the time frame and the larger the price move, log scale charts will define the trend in a clearer picture. Many technical analysts prefer log charts when using trend lines, as the angles will be different than on a regular chart. Experts suggest looking at both to determine levels of support, resistance, and trend changes, especially when the price change over the time frame at hand is greater than 20%.

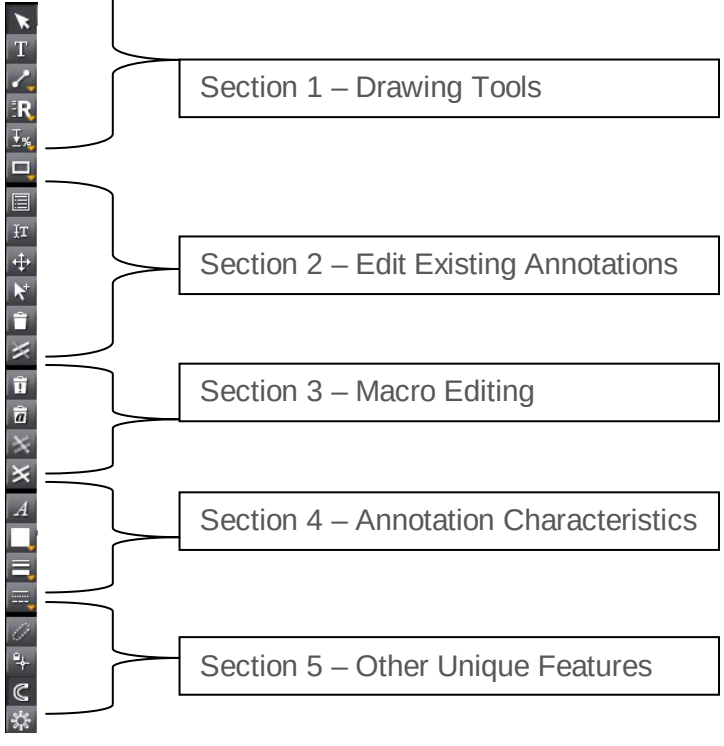
LOGARITHMIC CHART G, GPL

ANNOTATIONS

To draw lines, squares, percent change etc on a chart, you'll need to click on the "Annotate" button. This button is part of a thin grey toolbar that sits at the top of the price chart.

By clicking on this button, a long narrow annotations palette will open on the left side of the chart. Within this palette you will find all of the tools you can draw on the chart, ways to modify them, delete them and much more.

The palette can be broken down into five sections as shown to the right. By hovering on any button with your mouse, a list of options will appear if available. By moving your mouse into the list you can select a tool.



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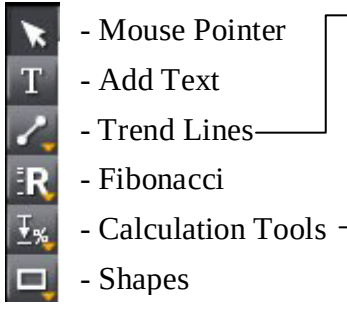
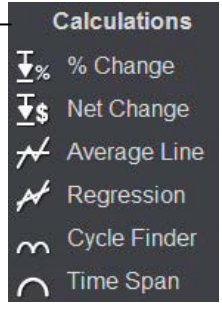
ANNOTATIONS

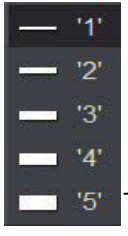


- Mouse Pointer
- Add Text
- Trend Lines
- Fibonacci
- Calculation Tools
- Shapes

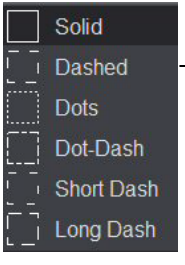


- Edit Annotation
- Edit Text
- Move/Resize Annotation
- Copy Annotation
- Delete Annotation
- Ghost “Hide” Annotation

- Delete All Annotations
- Delete All Text
- Ghost “Hide” All
- Unghost “Unhide” All



- Choose Text Properties
- Choose Annotation Color
- Choose Line Thickness
- Choose Line Style



- Reveal All Annotations
- Persistent Selection
- Magnet
- Rotate Annotation Colors

TREND LINE RULES

Trend lines are one of the most integral parts to analyzing a chart. Typically, trend lines are drawn by connecting a close to a close, a high to a high, or a low to a low. By projecting the line into the future, you can begin to estimate where price may find support or resistance. Extending old trend lines becomes increasingly important as a security matures. It is reasonable to believe that the more a line supports or resists price the more significant a break of that line is. For example, Pepsi Co had an upward sloping trend line from 2004 through mid 2008. A 4+ year trend line that was tested +/- 12 times. Slope is also important. A line with a high degree of slope is likely to be broken quicker and one with a low degree of slope will give a late or less useful signal. A good trend line will have a slope of about +/- 30 degrees.

Many people have different ideas on how to qualify a trend line as broken. The generally accepted way of doing so is to see price close on the opposite side of the line. To confirm it, some wait for a second consecutive close. Others may wait for price to get 1-3% beyond that line. It is quite common for a trend line to change polarity, meaning if it was previously support, it will probably act as resistance on a false rally.

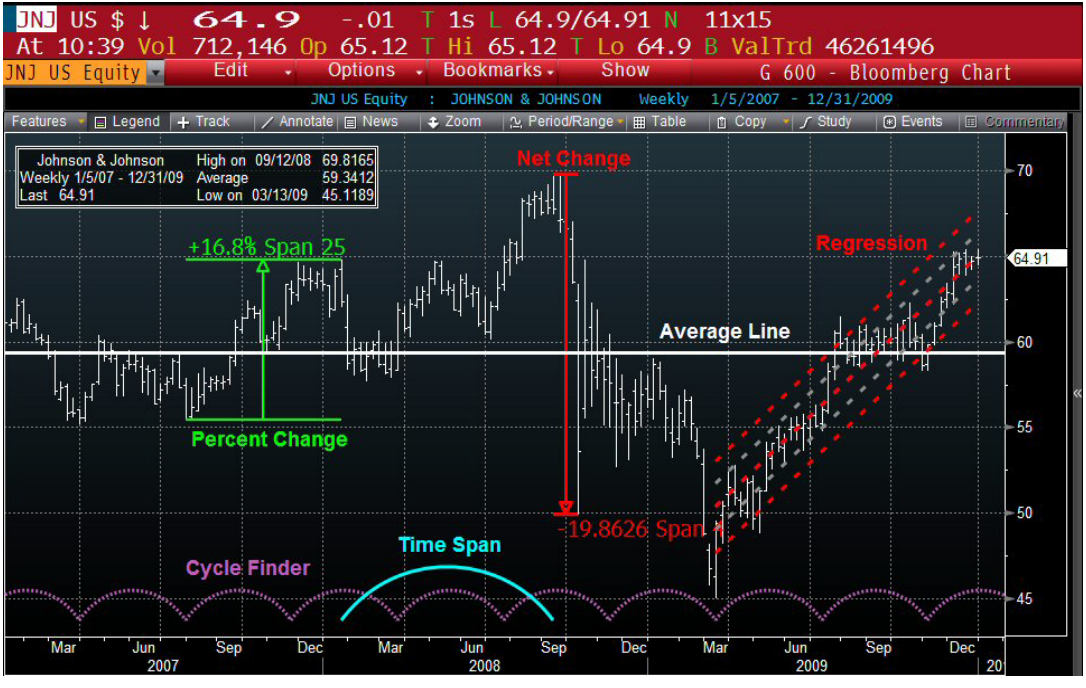
TREND LINE TYPES

CALCULATION TOOLS

The calculations button in the annotations palette offers some useful tools to draw on the chart. Shown below is an example of each annotation. Starting with measuring price movement, there are two tools you can use, **Percent Change** and **Net Change.** In TDEF1<go> you have the option to turn the Span option on/off and to show or hide Annualized % Change. Next is the Average Line in white going across the center of the chart. For the three year weekly chart, the average closing price is $59.34. Price is almost 9% above the average. In early 2008, price was 9% above the average and retraced to it. Another helpful tool to draw is linear regression. On the right side of the chart I have drawn the regression tool from the lows of 2009 to present time showing the “best fit” line and +/- 1 and 2 standard deviations from it forming a channel.

Measuring price is always helpful, but how about time? We have added two annotations that can do this. The Cycle Finder and the Time Span. There is one major difference between the two. The cycle finder goes indefinitely in each direction where the Time Span is one cycle that is easily copied and shifted to analyze other areas of the chart. Both become extremely useful for following the Principles of Cycle analysis such as Harmonicity and Summation discussed in *Technical Analysis Explained* by Martin Pring.

CALCULATION TOOLS



ACCUMULATION DISTRIBUTION OSCILLATOR G, GRAPH

The Accumulation Distribution Oscillator (ADO) uses a variation of the Relative Strength Index to define an instrument's buying and selling power. The ADO measures the implied direction of each period's trading, adding the open-to-high distance to the low-to-close distance, then dividing by two times the range and multiplying by 100.

$$ADO = ((High - Open) + (Close - Low)) / (2 * (High - Low)) * 100$$

A maximum value of 100 is reached when the instrument opens trading at the low and closes at the high. Conversely, when the period opens at the high and closes on the low, the ADO is 0. A turn up or turn down in the ADO can indicate a change in trend before the trend change happens.

The signal line is a moving average of the ADO. It smooth's the ADO line to determine when the security, on average, is overbought or oversold and a trend change is more likely to occur.

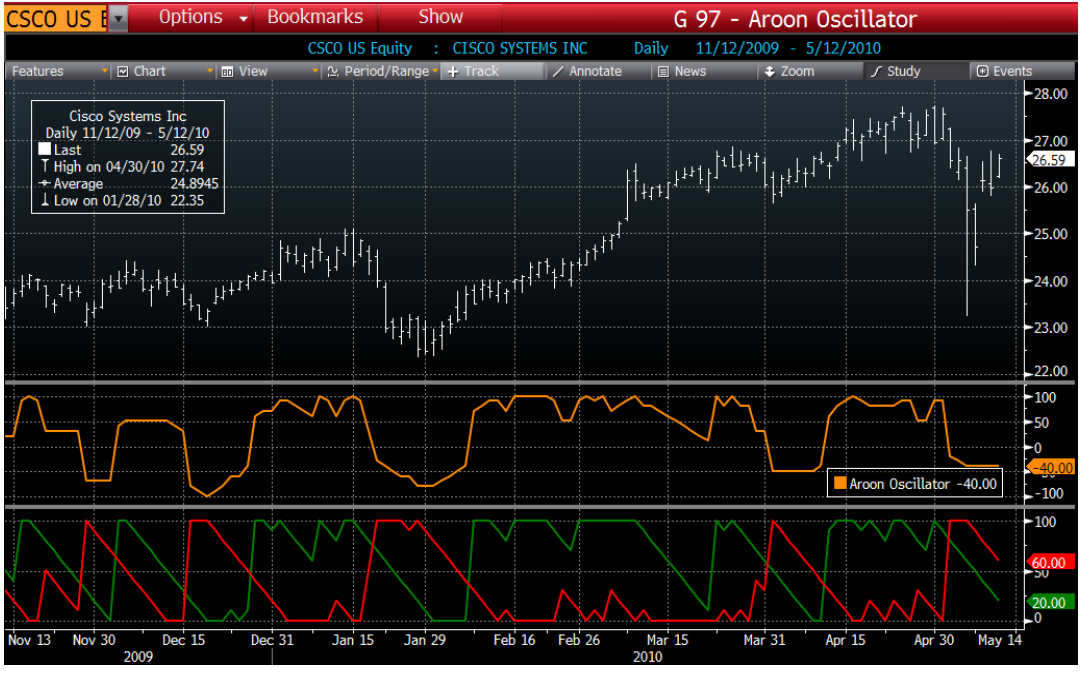
ACCUMULATION DISTRIBUTION OSCILLATOR G, GRAPH

AROON OSCILLATOR G, GRAPH

In Sanskrit the term Aroon means “dawn’s early light”. It was so named by its creator, Tushar Chande, because of its propensity to alert traders to developing trends in the markets. Like the ADX/DMI study the Aroon Oscillator is used as an indication of whether or not a particular security or index is trending or non-trending, the current direction of that trend, and finally the trend’s strength. Like many oscillators, the Aroon line fluctuates between -100 and 100, the farther away from 0, the stronger the trend. As the line moves above zero it is signaling an up-trend, below zero signals a down-trend.

The Aroon Line is simply the difference between the *Aroon Up* and the ***Aroon Down***. Readings above 70 in either one of these lines is considered an indication of a strongly trending market. As an Aroon Up or Down breaks through 50 to the downside, it is sign that the trend is losing steam. The Aroon Up line is calculated by analyzing the number of bars since the highest level in a given period. Aroon Down is simply the opposite, number of bars since the lowest level in a given period. When the Up & Down lines are moving lower in tandem it is often a sign of a non-trending, consolidation period.

AROON OSCILLATOR G, GRAPH



AUTO REGRESSION BANDS G, GRAPH

Auto Regression Bands is a way to monitor where price is relative to a linear fit line and X standard deviations from that line.

This can be important because trends and ranges can frequently become overbought or oversold. The +2 and -2 standard deviation lines serve as support and resistance in the trend. The likelihood of price breaking either of these levels is small because roughly 95% of the occurrences (closing prices) will occur between these levels. If your trend reaches the +2 standard deviation line, one would expect price to sell off rather than break above it. In the event price breaks the +2 level, something very significant is occurring forcing an influx of demand without additional supply and therefore a new trend is forming.

You can choose to use this as an indicator or also draw it on your charts by clicking on the grey “Annotations” button and selecting Regression. In drawing this study, you would likely identify a significant turning point on the chart and draw it to the current point. The study becomes handy when looking at fixed time periods, such as a 5 year weekly chart with a study setting of 260 weeks.

AUTO REGRESSION BANDS G, GRAPH

AVERAGE TRUE RANGE G, GRAPH

Average True Range measures volatility in terms of the range of each bar. It was designed by Welles Wilder and was popularized in his book *New Concepts in Technical Trading Systems*. ATR is used in the calculation of many popular indicators, including Bloomberg Trender and Fear & Greed indicators.

The “true range” for a single trading day is the greatest of these three choices:

1. Today’s high minus today’s low
2. The absolute value of today’s high minus yesterday’s close
3. The absolute value of today’s low minus yesterday’s close

In short, the true range represents today’s trading range, adjusted for the gap between yesterday’s close and today’s open. The ATR is an exponential average of these values over time. The Average True Range is a non-directional indicator which tends to peak at market turns. That is, in an uptrend, a high ATR would suggest an impending top. In a downtrend, an impending bottom.

AVERAGE TRUE RANGE G, GRAPH

BOLLINGER BANDS G, GRAPH

Bollinger Bands show an expected trading range based on volatility.
Bollinger Bands, made popular by John Bollinger, are an improvement over the traditional trading bands. In a trending market, the bands will expand. In a sideways or range bound market they will contract.

Many trading bands use a percentage above and below a moving average to measure volatility. Bollinger Bands, however, are created by calculating two standard deviations above and below a 20-day simple moving average. Therefore, the price should remain within the bands about 95% of the time.

In a range-bound market, the price should find resistance at the upper band, and support at the lower band. If the price breaks decisively through either band, extreme momentum should propel the price further in the direction of the breakout. John Bollinger suggests that a significant price move will be prefaced by a period of lower volatility. Look at the bandwidth (represents the width of the bands) to identify these consolidation periods.

BOLLINGER BANDS G, GRAPH

CANDLESTICK PATTERNS CNDL

The CNDL function indicates candle patterns on the price chart.

Candlestick patterns can vary from a single candle to as many as five candles. Some patterns are designed to signal trend reversals, while others will suggest a continuation of the trend. The underlying trend and combination of signals is very important in candlestick analysis.

Some example candle patterns to look for:

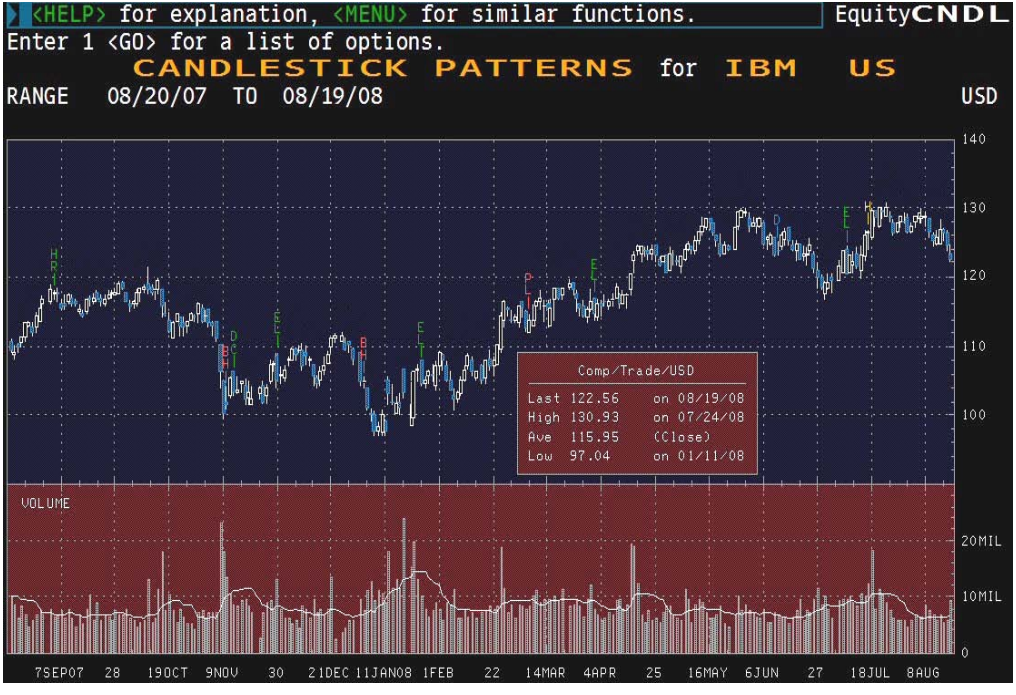
DOJI: A doji candle has an open and close at about the same level. Therefore, the candle appears as a cross on the chart. This pattern suggests a pause in trend.

HAMMER: A hammer candle has a small real body, a long lower shadow, and no upper shadow. A hammer only appears in a downtrend, and suggests a bottom. In an uptrend, this would be called a “hanging man.”

ENGULFING PATTERN: In an uptrend, a long open candle is followed by a long solid candle, and the second candle’s real body “engulfs” the real body of the first. In a downtrend, a long solid candle is followed by a long open candle.

From **CNDL<GO>** press <Help> and select 6 <GO> for a list of illustrated candlestick patterns.

CANDLESTICK PATTERNS CNDL



CHAIKIN OSCILLATOR G, GRAPH

The Chaikin Oscillator shows if volume is flowing into or out of a security.
The Chaikin Oscillator, developed by Marc Chaikin, is based on the assumption that rising volume confirms the direction of trend and falling volumes warn of a change in trend. When this relationship changes, a possible change in the price trend may result.

Chaikin Oscillator = (3-day moving avg of the ADL) - (10-day moving avg of the ADL)

ADL = (((Close - Low) - (High - Close)) * Volume) / (High - Low)

There are two ways in which the Chaikin Oscillator is used. The most important signal to note is divergence between price and the oscillator: when prices reach a new high or low in a trend and the oscillator *fails to exceed* its previous extreme reading and then reverses direction.

A second way to use the oscillator is to note changes in direction. BUY signals are given when the price of the security is above its 14-day moving average, the oscillator turns upwards and the value of the oscillator is negative. SELL signals are given when the price of the security is below its 14-day moving average, the oscillator turns downwards and the value of the oscillator is positive.

CHAIKIN OSCILLATOR G, GRAPH

COMMODITY CHANNEL INDEX G, GRAPH

CCI measures a security's variation from the statistical mean.

Like many other oscillators, there are two basic methods of interpreting the Commodity Channel Index: identifying overbought/oversold areas and price/oscillator divergent signals. The CCI typically oscillates between +/-100. To use the CCI as an overbought/oversold indicator, readings above +100 imply an *overbought* condition, while readings below -100 imply an *oversold* condition. Signals are given when the oscillator enters either the overbought or oversold area and turns in the opposite direction.

Price = (high + low + close)/3

CCI = (today's typical price-today's moving average)/(today's mean deviation * 0.015)

A *divergence* occurs when the price of a security makes new highs/lows while the CCI fails to surpass its previous highs/lows. This divergence suggests that the momentum is coming out of the trend, and a reversal is imminent.

For more information on the Commodity Channel Index, type **G <GO>** and press <Help>, scroll to page 3 and select 30 <GO> 'Technical Studies'.

COMMODITY CHANNEL INDEX G, GRAPH

COPPOCK STUDY G, GRAPH

The Coppock Indicator (Coppock Curve) was originally designed by Edwin Coppock in the 1960's. Based on his belief that bear markets resemble bereavement periods and the thought that mourning often lasts between 11 & 14 months, Edwin used the 11 & 14 month Rate of Change Indicators (ROC) in his original formula.

In its classic application, this indicator is only used to find major buying opportunities in bear markets; therefore Coppock looked for any turn upwards in the indicator from a level below zero. It is important to note that the Coppock does not need to be positive for a buy signal; all that is necessary is a move up in the monthly figure from a lower previous monthly figure.

Finally, Coppock and many proponents of the Curve, use this only on monthly charts and only on major equity market indices. The Coppock Indicator is simply a *10 Period Weighted Moving Average (MA) of the ROC(11) + ROC(14).*

COPPOCK STUDY G, GRAPH

DEMARK™ INDICATORS G, GRAPH, TDRS

DeMark™ indicators are designed to anticipate turning points in the market.
Tom DeMark continues to create new methods to break down price movements and anticipate changes in trend. His most popular technique, TD Sequential™, was designed to signal price exhaustion or the "end of the trend." Unlike traditional technical indicators, which can be subjective and inconsistent, TD Sequential™ presents a systematic method for identifying when buyers and sellers may cause the trend to reverse.

TD Sequential suggests a short term trend change for 1-4 price bars when a green 9 appears. It also suggests a long term trend change to be confirmed within 12 bars when a red 13 appears.

For more information on TD Sequential, see GEDU<GO>. For more information on all DeMark indicators, consider reading "DeMark Indicators" by Jason Perl and subscribing to TDRS<GO>

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DEMARK™ INDICATORS

G, GRAPH, TDRS

DIRECTIONAL MOVEMENT G, GRAPH

DMI measures the strength and direction of a trend.
The Directional Movement Index (DMI) was created by Welles Wilder (also the creator of RSI and Parabolic Systems). DMI measures the "directional movement", using today's high and low prices relative to the previous day's high and low prices. By smoothing these comparisons over time, DMI uses the theory that an uptrend sees higher highs, and a downtrend sees lower lows.

A **buy** signal is generated when +DMI (green) crosses up through –DMI (red).
A **sell** signal is generated when +DMI (green) crosses down through –DMI (red).

The white ADX line is a 14-period moving average of the difference between the +DMI and –DMI values, and represents the strength of the trend. An ADX above 20 or 25 would suggest a trending market, while an ADX level below 20 or 25 would indicate a range-bound market. A buy/sell signal, coupled with an increasing ADX line, suggests a stronger trend.

DIRECTIONAL MOVEMENT G, GRAPH

ERLANGER PUT / CALL RATIO G, GRAPH

The Put / Call ratio analyzes the total volume of put and call option contracts traded for an underlying security in an effort to compare if the market is trading more puts or calls over time. When option traders are bullish, call volume exceeds put volume and the put/call ratio falls. When option traders are bearish, put volume exceeds call volume and the put/call ratio rises. A very low ratio is a warning of an overbought market. A very high ratio signals an oversold market.

Erlanger Put / Call Ratio is a measurement of the volume weighted value of all options contracts for a security. It uses a weighted average of the call and put volume and then abstracts the Median for that time frame plotting both on the chart.

For more information on Erlanger studies, please type **DOCS ERLANGER<GO>** or see **ERLA<GO>**.

ERLANGER PUT / CALL RATIO G, GRAPH

ERLANGER TREND DIRECTION G, GRAPH

Erlanger Trend Direction (a proprietary indicator of Phil Erlanger Research) is used to measure the coincident trend underway. The indicator predominately relies on double smoothed exponential averages of price. There are four "states" to this indicator:

1. An uptrend is underway when there is a green highlight above the center line.
2. A pullback in an uptrend is underway when there is red highlight above the centerline
3. A downtrend is under way when there is a red highlight below the centerline
4. A rally in the downtrend is underway when there is a green highlight below the centerline

It might help to think of the trend direction mechanism as a coincident (to slightly lagging) indicator. The four stages allow for the indicator to confirm an investor's suspicion of a top, bottom, or turn in the market. It is suggested to use this indicator on multiple time frames to build confidence in the direction of trend for the short, intermediate, and long term.

For more information on Erlanger studies, please type **DOCS ERLANGER<GO>**

ERLANGER TREND DIRECTION G, GRAPH

FEAR & GREED G, GRAPH

Fear & Greed measures the momentum behind price movements, based on the daily "true" trading range.

Fear & Greed uses Average True Range (ATR) and Exponential Moving Averages to calculate. The resulting indicator is an oscillator that identifies when price volatility is supporting a bullish or bearish trend.

The green sections indicate the bulls are in control; the red sections indicate the bears are in control. The letter "A" stands for Alert, and indicates when the sentiment is reversing. There is a sensitivity factor used to smooth out the oscillator. Use a higher number (7-10) for longer-term analysis, or a lower number (2-4) as a shorter-term indication.

For more information on Fear & Greed, type **DOCS FEAR GREED <GO>**.

FEAR & GREED

G, GRAPH

FIBONACCI RETRACEMENTS G, GPO, GPC

Fibonacci retracements can identify potential support/resistance levels.

Based on the work of 13th century mathematician Leonardo Fibonacci, these percentage levels tend to identify key support/resistance levels in any market. Since markets tend to fluctuate between various price points (as opposed to just trending straight up then straight down), Fibonacci retracements can often provide price objectives that would not typically be recognized by looking at the price chart.

Fibonacci levels are based on a sequence of numbers: 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, etc., where every number is the sum of the two previous numbers. The percentages used in this analysis all come from ratios found in the above sequence.

The two main Fibonacci levels (38.2%, 50%, 61.8%) often serve as key support/resistance levels. The other percentages (23.6%, 76.4%) serve as secondary levels. Apply Fibonacci retracements to the prior trend to determine support/resistance levels for the future. To draw this study on any chart, click on Annotate > “R” for Retracements and select a tool. To edit your Fibonacci levels, type **TDEF1 <GO>** and click on “Values” on the bottom left. You can also right click on a Fibonacci annotation and edit that individual one. For more on Fibonacci, see **DOCS 2056907<GO>**.

FIBONACCI RETRACEMENTS G, GPO, GPC

GENERAL OVERVIEW CHART G, GRAPH

Ichimoku charts combine three technical indicators to define a price trend.
The General Overview Chart was developed by Goichi Hosoda, and is commonly referred to as an Ichimoku chart. While very little has been written about the approach, much has been passed on in Japanese markets through word of mouth.

Ichimoku charts are a combination of a number of trending indicators, similar to a moving average technique. Close and mid prices are manipulated to generate a pattern of signals that are plotted 26 days in the past, 26 days in the future, and along with the current price data.

Look for the following Buy/Sell signals:

1. Conversion line (pink) crosses up/down through Base line (yellow).
2. Lagging span (gray) crosses up/down through Price.
3. Price crosses up/down through the Cloud (blue).

Practitioners of the Ichimoku technique can use these charts to identify short-term momentum, long-term trends, and price objectives. For more information on Ichimoku charts, type **DOCS ICHIMOKU <GO>**.

GENERAL OVERVIEW CHART G, GRAPH

HURST EXPONENT G, GRAPH

The Hurst Exponent measures the persistence of trend.

Chaos theory itself has been around for many years, and is often used in fields outside of finance. The Bloomberg representation of this technique is based on the work done by Christopher May, which involves nonlinear pricing methodology. The portfolio theory of the 1970's assumes that price movement of any traded security is random 100% of the time, that is, it's unpredictable. Hurst shows the assumption of randomness is overly restrictive. A time series can be persistent, random, or anti-persistent. A persistent time series has the tendency to continue doing what it has been doing, i.e., going up or going down. A random time series is totally unpredictable, and an anti-persistent time series has a higher probability of reversing its current trend rather than continuing. Thanks to computers, applied math has shown that the assumption of randomness is incorrect. Prices persist or anti-persist more often than they are random, as the study indicates. If the portfolio theory were correct, the Hurst Exponent would constantly have a value of 0.5, which identifies a random time series. As the graph shows, most of the time prices are either persistent or anti-persistent.

HURST EXPONENT G, GRAPH

INTERPERIOD MOVING AVERAGE G, GRAPH

The Interperiod moving average is a daily, weekly, monthly, quarterly, or yearly moving average plotted on an intraday period chart.

The example above is a 30 minute bar chart showing the last 20 days of trading. Placed on top of that in yellow is a moving average of the closing values for the last ten days. Notice how a daily moving averaged placed on an intraday chart provided resistance on 7/15, 7/17 and 7/31.

If you frequently look at intraday charts, plotting the moving average of the daily closing price along with a moving average of the last 10 bars of 30 minute trading could provide important signals and support/resistance levels. Important signals could be generated when price breaks both levels and when the intraday moving average crosses the daily moving average.

INTERPERIOD MOVING AVERAGE G, GRAPH

KELTNER BANDS G, GRAPH

Keltner Bands identify breakouts and support/resistance levels.
Keltner Bands were developed by Chester W. Keltner. As with other trading envelope indicators (Bollinger Bands, percentage bands, etc), prices are expected to revert to the mean. When the price breaks above the upper band, or below the lower band, heavy momentum in the market would suggest a trading opportunity.

You can also treat Keltner Bands as an oscillator- i.e., above the upper band is overbought, below the lower band is oversold. In a sideways market, the upper and lower bands can often be used as short-term reversal points.

The middle band represents the “Average Price,” or an average of the high, low, and closing prices. The upper band is the 10-day moving average of the Average Price plus the 10-day moving average of the daily trading range (high-low). The lower band is the 10-day moving average of the Average Price minus the 10-day moving average of the daily trading range.

KELTNER BANDS G, GRAPH

MARKET PICTURE MKTP, GIMP, GIMH

Market Picture analyzes the distribution of trades over time.

The Market Picture application on Bloomberg shows the distribution of price and volume over each trading day. By analyzing the shape of this picture every day, you can identify where buyers and sellers are coming into the market, and anticipate accumulation and distribution points.

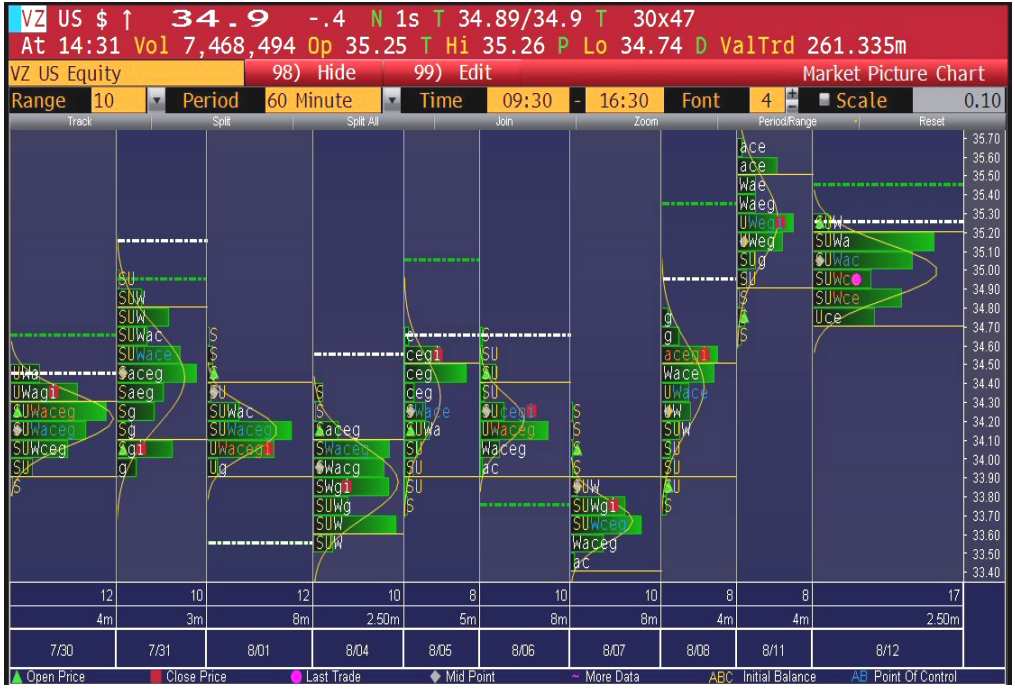
Each letter represents 30 minutes of the trading day and illustrates at which price levels trades were executed during that period. At the end of the day, all the letters are stacked on the left column to create a “picture” of the trading activity. A normally distributed trading day will have the shape of a bell curve. The blue row is called the “point of control”, and shows where the most time was spent during the session. The value area (horizontal lines) represents 70% of the volume for the day’s trading range.

The shape of the picture, the distribution of volume, and the change in the value area should help you to identify points of liquidity in the current session.

For more information on Market Picture, type **MKTP** and press <Help>. You may also type **DOCS MARKET PICTURE <GO>**.

MARKET PICTURE

MKTP, GIMP, GIMH



MAX/MIN G, GRAPH

The Max/Min indicator is designed to point out the highest high and lowest low in the last X days. This indicator can be considered a trend-following breakout system. If a security is in a downtrend and finds a potential bottom, a break above the orange line is confirmation of a change in trend. In contrast, if the security is in an uptrend and forms a top, a break down below the blue line is confirmation of a change in trend. In summary:

1. When price closes above the Max line (orange), buy long and cover short positions.
2. When price closes below the Min line (light blue), sell short and liquidate long positions

Another way to use the indicator is monitoring a range bound market. In the below example for Gentex GNTX, the security is not at a top or a bottom but has been consolidating in the $16-16.50 range. A breakout above or below the highest or lowest price over the last 20 days would indicate the security rallying in that direction.

MAX/MIN

G, GRAPH

MCCLELLAN OSCILLATOR MCCL

The McClellan Oscillator is a measure of market breadth.
The McClellan Oscillator, created by Sherman McClellan, is based on the smoothed difference between the number of advancing and declining issues of a particular stock market. For U.S. stocks, the NYSE advance/decline data is used. *Note: this results in the same chart being displayed for any U.S. stock*.

A “breadth” indicator measures the participation of the entire stock market in order to gauge the strength or weakness of it. For example, a healthy bull market is accompanied by a large number of stocks making moderate upward advances in price. A weakening bull market is characterized by a small number of stocks making large advances in price, giving the false appearance that everything is well. This type of divergence often signals an end to the bull market, which can also signal the same for particular stocks. A similar interpretation applies to market bottoms, where the market index continues to decline while fewer stocks are declining.

For more information on the McClellan Oscillator, type **MCCL**<GO> and press <Help>

MCCLELLAN OSCILLATOR MCCL

MCGINLEY DYNAMIC INDICATOR G, GRAPH

The McGinley Dynamic indicator (MDI) was developed to avoid false signals in trading due to spikes in volatility. Although it looks like a “normal” moving average, it actually uses an offset to push the moving average forward 1 period and a volatility filter to avoid whipsaws. While simple and exponential moving averages are faster than the MDI, the MDI adjusts for faster/slower moving markets and has a more consistent track-record when associated with longer-term trends.

The MDI line moves with prices unless there is a volatility spike, this is where the filter is incorporated. Many traders use a volatility overlay like Bollinger Bands in concert with the MDI in order to fade these spikes up or down in price.

MCGINLEY DYNAMIC INDICATOR G, GRAPH

MOMENTUM G, GRAPH

The Momentum indicator allows one to simply measure the net change in price between two points on a chart.

For example, the orange line in the chart above is being calculated by taking today's closing price and subtracting the closing price 10 days ago from it. Applied on top of that is a 5 day moving average of the momentum line.

Typically, a buy signal would be generated with the Momentum line crosses above the moving average and a sell when then Momentum line crosses below the moving average. One should also look for areas of divergence. Divergence is occurs when price makes a higher high and the indicator fails to do the same adding bearish sentiment to the chart. It also occurs when price makes a lower low and the indicator fails to do the same adding bullish sentiment to the chart.

MOMENTUM G, GRAPH

MONEY FLOW GM, G, GRAPH

Money flow identifies when the "smart money" is supporting a price move.
Money flow functions on the theory that price follows money. Any trade on an uptick results in money (price * volume) being added to the money flow. A downtick will cause that money to be subtracted from the money flow. At the end of the day, you can calculate the total cumulative money flow for the trading session. Look at this daily figure over a period of time to measure the underlying sentiment behind equity's trading.

For the most part, price and money flow should move in conjunction. However, when a divergence occurs, remember that price follows money.

- Buying on weakness – Price decreases, money flow increases
  Look for price to increase to meet the increase in money flow.
- Selling on strength – Price increases, money flow decreases
  Price should decrease due to money flowing out of the equity.

For more information on the calculations and interpretations of Money Flow, type GM<GO> and then press <Help>

MONEY FLOW

GM, G, GRAPH

MOVING AVERAGES G, GRAPH

Having a clear understanding of how moving averages actually "move" is important if you're using them to manage your investments. There are five types of moving averages on Bloomberg. They are Simple, Exponential, Weighted, Variable and Triangular. The method derived to calculate each average affects when a trade signal will occur. A simple moving average is calculated by adding the closing price of 100 days and then dividing by 100 providing an equal weight to each price. A weighted moving average[WMA] considers newer data more in its calculation. A 100 day WMA will multiply (weight) the most recent day by 100, the day before by 99, 98, 97 etc. A triangular moving average[TMA] is designed to weight the data in the center of the set the most and decrease the weight moving in each direction. An exponential moving average[EMA] is another version of a WMA. It applies a portion of today's closing price to yesterdays EMA value making the final value sensitive to the current days price change. A variable moving average VMA are EMA that consider the volatility (the highest high and lowest low of X days) of the stock price to determine how it should smooth the data set. This enables the average to follow the trend much closer as a security continues to higher or lower closing prices.

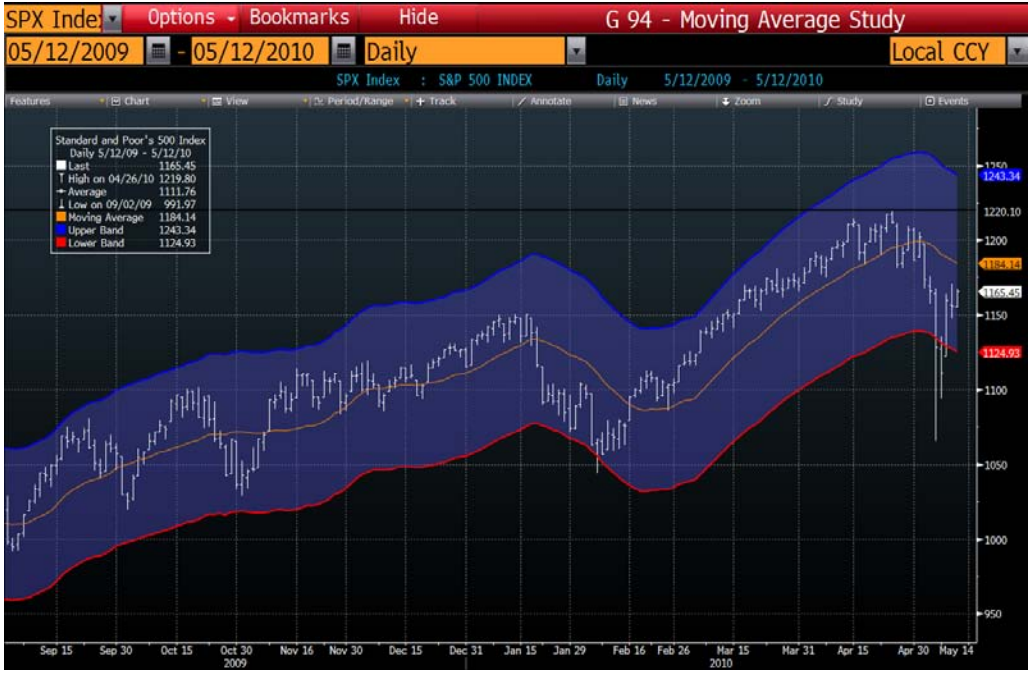
Looking at the below weekly graph we can see a typical representation of how these averages react in a trending market. Typically, a VMA generates the earliest signal because of the way it considers volatility in its calculation. A WMA is next because it considers the current price the most in the average. The EMA is a close third to the SMA and then the TMA. And remember, just because the VMA tends to provide the earliest signal, that doesn't mean it's the right one!

MOVING AVERAGES G, GRAPH

MOVING AVERAGE STUDY G, GRAPH

Similar to *Moving Average Envelopes,* the new Moving Average Study (MAS) on Bloomberg plots a percentage band above and below a moving average. With the MAS users can select from six different moving averages including simple, weighted, exponential, variable, triangular, or smoothed. There is also an option to add an offset to the average so that users can choose to lead/lag price based on inputs. Traders apply the Moving Average Study in a similar fashion to Envelopes and Bollinger Bands. As traders push prices to extremes, prices often stabilize and revert to the recent mean. The mean in this case is represented by the chosen moving average. Therefore the upper and lower MAS bands are expected to act as support and resistance. Alternatively, when price is strong enough to break through one of the bands then prices are expected to continue in that direction.

MOVING AVERAGE STUDY G, GRAPH



MOVING AVERAGE CONV/DIV G, GRAPH

MACD measures the strength and direction of a trend.
MACD was created by Gerald Appel, and shows characteristics of both a trending indicator and an oscillator. While the primary function is to identify turning points in a trend, the level at which the signals occur determines the strength of the reading.

The MACD line (white) represents the difference between the 12 and 26-day exponential moving averages. The Signal line (red) is a 9-day exponential moving average of the MACD line. An exponential moving average applies a percentage of today's value to yesterday's moving average value.

A buy signal is generated when the MACD line crosses up through the Signal line. This signal is strongest at the lower end of the MACD range. A sell signal is generated when the MACD line crosses down through the Signal line. This signal is strongest at the higher end of the MACD range. Confirmation of trend direction is provided when the MACD line and the Signal line cross above or below the base line of 0.

MOVING AVERAGE CONV/DIV G, GRAPH

MOVING AVERAGE ENVELOPES G, GRAPH

Moving Average Envelopes show an expected trading range based on volatility. Similar to Bollinger Bands, Moving Average Envelopes are plotted by calculating percentage bands above and below a moving average. That is, after a simple moving average is drawn, the bands are drawn X% above and X% below the moving average. This creates an "envelope," representing the expected trading range for the security.

The theory behind envelopes is that overzealous buyers and sellers push prices to extremes, i.e. the upper and lower bands, at which point prices often stabilize by moving to mean reversion levels. When the price reaches the upper band, it is assumed that resistance will be met and the price will trade lower. When the price reaches the lower band, the theory is that buyers will enter the market and push the price higher. When the price action breaks through the upper or lower band, ideally on heavy volume, a breakout has occurred and a continuation of the current trend is expected.

MOVING AVERAGE ENVELOPES G, GRAPH

MOVING AVERAGE OSCILLATOR G, GRAPH

The moving average oscillator calculates three values:

1. White line is the spread between two specified simple moving averages
2. The red line is a simple moving average of the white line
3. The histogram is a visual representation of the spread between the white and red line.

This indicator uses simple moving averages, meaning it simply adds X values together and divides by X. MACD, on the other hand, uses an exponential moving average calculation that weights the current closing price more in the calculation and never omits any closing prices historically from the start of its calculation. Depending on your style of investing, some prefer simple averages and others prefer exponential.

MOVING AVERAGE OSCILLATOR G, GRAPH

ON-BALANCE VOLUME G, GRAPH

On-Balance Volume measures volume activity to indicate shifts in sentiment.
On-Balance Volume, created by Joe Granville, is based on the theory that volume activity is proportional to the direction trend. High volume on days where the market closes higher suggest the “smart money” is building long positions. High volume on down days suggests the smart money is winding out of positions. Low volume on a big price movement suggests that retail investors are driving the price and the move is a false indication of overall trend direction.

In theory, On-Balance Volume changes should precede price changes. The On-Balance Volume line is calculated in the following manner: If the market closes higher than the previous day’s close, that day’s volume is added to the cumulative total. On a down day, that day’s volume is subtracted from the total.

The indicator is most useful when divergences are apparent. It is bearish, or a signal of an impending top, when price continues to set higher highs and the OBV level is declining. It is bullish, or a signal of an impending bottom, when price continues to set lower lows and the OBV level is turning up. The overall direction of line is the important factor, not the value.

ON-BALANCE VOLUME G, GRAPH

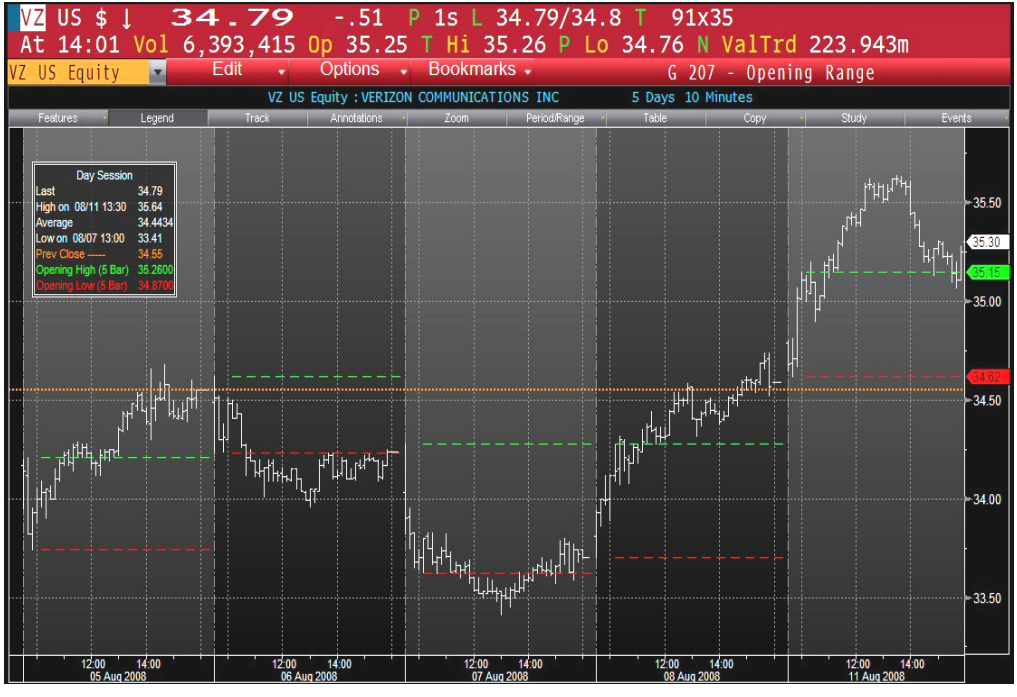
OPENING RANGE G, GRAPH

The opening range indicator is designed to show two horizontal lines that will provide support or resistance based on a certain amount of trading at the beginning of the day. The idea is based on the belief that the most supply and demand builds up after yesterdays close and into today's open. By analyzing the beginning of the market open one can predict where a security will find support/resistance and where the security will close on the day.

In the chart below, each green line is drawn from the highest high after the first five bars of trading and the red line is drawn from the lowest low based on the first five bars of trading. This bar chart is a 10 minute chart so it would also be correct in saying a line is drawn from the highest high and lowest low based on the first 50 minutes of trading. If price has enough strength to break through the highest high after the first 50 minutes of trading (taking into consideration the adjustment of supply and demand since the market had been trading for almost an hour), price is in a strong uptrend and should close equal to or higher than that level on that day and also possibly find support at it.

Take a look at August 11th. Based on the first 50 minutes of trading a high line was set at 35.15. Price broke above this level and traded above 35.50 through the lunch time hour. Then the trend changed breaking below support at 35.50 and closed right near the high line.

OPENING RANGE G, GRAPH



PARABOLIC SYSTEMS G, GRAPH

Parabolic Systems provide a dynamic stop-loss approach to trading.

The Parabolic Time/Price System, developed by Welles Wilder, is best used in a moving or trending market. The theory behind it involves knowing when to get out of a market through the use of stop orders. The yellow asterisks are known as SAR points, to help you determine where to “stop and reverse” your position. The SAR point is not only a function of price but also a function of time. For example, in a long trade the SAR point moves up based upon positive price movement and/or the element of time.

The SAR on the first day of a trade is equal to the extreme price (EP) reached in the previous trade. The extreme price can be defined in a long trade as the lowest price reached while in the previous short trade. The SAR points follow the price using an acceleration factor (AF) that increases based on the velocity of the price movement.

When the price crosses the line of SAR points, the indicator suggests closing the current position and opening a new position in the opposite direction.

PARABOLIC SYSTEMS G, GRAPH

PIVOT POINTS G, GRAPH

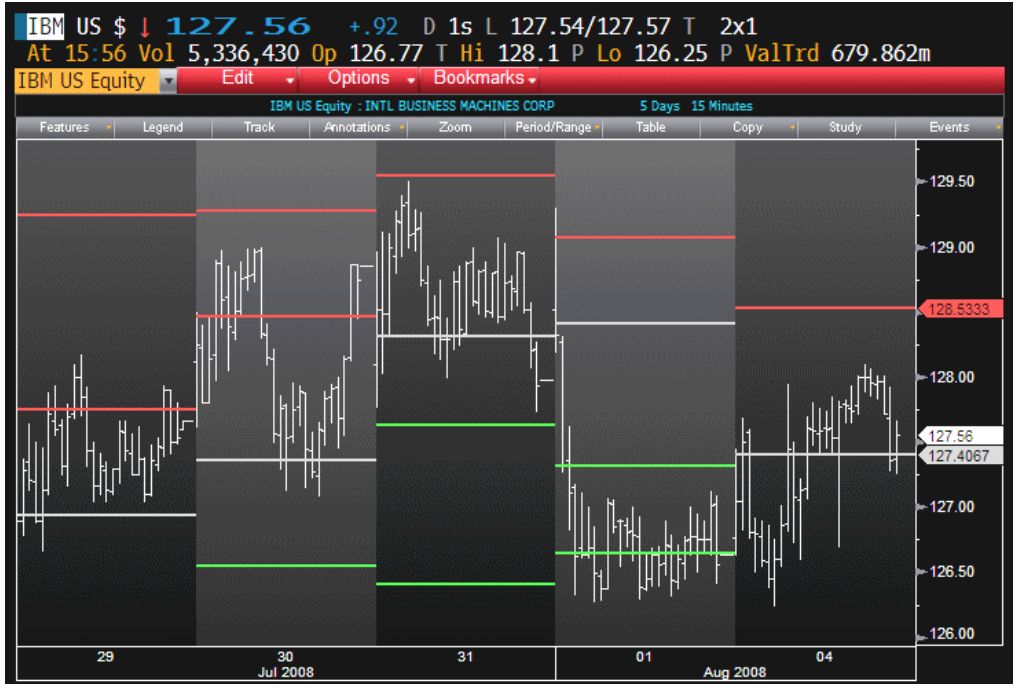
Pivot points are designed to identify potential support/resistance levels.

The “pivot technique” is widely used among professional futures floor traders. During the trading day, the Pivot Point is considered the main inflection point for the day. The other four calculated numbers have significance too, but to a lesser degree.

If a market opens above the P.P. and starts to sell off, many floor traders will cover shorts and also go long into this price level. If the market rallies from the P.P., “locals” will look to liquidate into R1 as well as short there. If the market proceeds to penetrate above R1, locals will lean on this level by covering their shorts and going long, thus trying to push the market to the next inflection point higher, R2. The same holds true that they will lean on this R2 level just as they did the R1. The same method of leaning on these inflection points also occurs if the market is below the P.P. Locals will lean on S1 and look to buy there hoping to push the market back to the P.P. If S1 gives way, locals will sell out their longs and go short, looking for a move down to S2.

PIVOT POINTS

G, GRAPH



POINT & FIGURE PFP, GIPF

Point & figure charts show the pure trend of the market.

Point & figure analysis removes time as a factor, and concentrates purely on price movements. Supply and demand forces are represented by alternating columns of X's (uptrends) and O's (downtrends).

The *box size* refers to the price scale used on the chart. For example, if the box size is 1, then each X or O represents 1 price point.

The *reversal* determines when you will move to a new column and is represented as a multiple of the box size. That is, if the box size is .5 and the reversal is set at 3, then the price would have to move against the trend by 1.5 price points to move to a new column. The numbers 1-9 and letters A,B,C appear in some columns representing January through September and October through December respectively.

In the short-term, a change in column can often signal a reversal in trend. In the long-term, use Point & Figure charts to identify key support and resistance levels, breakout patterns, and price congestion.

For more information on point & figure charts, type **PFP <GO>** and press <Help>

POINT & FIGURE

PFP, GIPF

PREVIOUS OHLC G, GRAPH

Previous OHLC gives users the option to apply a horizontal line on an intraday chart representing the open, high, low, close, midpoint and/or average of the HLC of the previous day, week, month and shade the area between yesterdays open and close. The value in knowing and visually seeing these levels is important for short term trading and confirming a trend change. In the chart above on August 12th, price found support at the previous days open and struggled twice to stay above yesterday's close.

PREVIOUS OHLC

G, GRAPH

RATE OF CHANGE G, GRAPH

Rate of Change determines the momentum behind price movements.
Rate of Change measures the percent change in the price movements over a period of time. This is represented by the formula:

$$\frac{\text{Current Price} - \text{Price } n \text{ periods ago}}{\text{Price } n \text{ periods ago}}$$

For the most part, price and ROC should move together. When the price and ROC diverge, look for the ROC to be a clearer indication of the underlying momentum of the trend.

RATE OF CHANGE G, GRAPH

REGRESSION BANDS G, GRAPH, GPO, GPC

Regression lines can help identify short-term swings within an overall trend.
Linear regression analysis can help to clarify a long-term fundamental trend, and to identify short-term momentum swings within that trend.

To apply regression lines on Bloomberg, click on the gray “Annotate” button, hover on the Calculations button, and select the regression options. Now left click at the beginning of the time frame you want, and drag the mouse over to the right. The lines will update dynamically based on the price data. Regression +/- 1 & 2 Standard Deviations is in the chart below. You can drag the regression lines past the current data to project the lines forward.

The middle line is the least squares regression line, or a “best fit” line. This means the line is the best representation of the overall move for that time period. The other lines are one and two standard deviations above and below the regression line.

When the price reaches the outside boundaries of the regression channel, look for the price to “revert to the mean”, or return to the middle regression line.
Bloomberg also has an Auto Regression Bands feature, which will automatically show regression lines with a preset number of days. Create a G graph to use this indicator.

REGRESSION BANDS G, GRAPH, GPO, GPC

RELATIVE STRENGTH ANALYSIS G, MGR

Relative Strength measures the performance of a security to a benchmark.
It is calculated by taking the price of the security, in this case a stock, and dividing it by the price of the benchmark, for example, the S&P 500. When the value of this ratio is rising, the stock is outperforming the index and is the better investment. When the ratio is declining, the securities performance is lagging.

In the above example, Microsoft MSFT bottomed out in June 2006 at $22/share. A rally ensued into the summer months primarily fueled by the anticipated release of Windows Vista TM. MSFT was outperforming the S&P 500 for over six months as the Relative Value portion of the graph demonstrates. Trend line analysis allows us to identify two support lines that were broken on the price graph and a well defined support line on the RV graph. The break of both trend lines should have been enough to convince us the uptrend in MSFT was coming to an end.

RELATIVE STRENGTH ANALYSIS G, MGR

RELATIVE STRENGTH INDEX G, GRAPH

RSI measures the momentum behind price movements.

The Relative Strength Index (RSI) was created by Welles Wilder (also the creator of DMI and Parabolic Systems). RSI is based off the ratio of the average up close to the average down close over a period of time. That is, when the security closes higher than the previous day, how strong is that upward move? By looking at the moves over time, RSI can serve as a measure of the overall momentum behind price swings.

$$RSI = 100 - [\ 100/(1 + [Avg\ Up/Avg\ Dn])]$$

An overbought condition (RSI > 70) suggests the security has moved too high too quickly. A break back below 70 should indicate a correction.

An oversold condition (RSI < 30) suggests the security has moved too low too quickly. A break back above 30 should indicate a correction.

For longer-term signals, look for divergences between price and RSI. A bullish divergence sees price sloping down and RSI sloping up. A bearish divergence is present when price is sloping up, and RSI is sloping down.

RELATIVE STRENGTH INDEX G, GRAPH

REX OSCILLATOR G, GRAPH

The Rex Oscillator is a study that measures market behavior based on the relationship of the close to the open, high and low values of the same bar. The theory behind the Rex Oscillator is that a big difference between the high and close on a bar indicates weakness. Conversely, wide disparity between the low and close indicates strength. The difference between open and close also indicates market performance.

The True Value of a Bar (TVB) gives us an indication of how healthy the market is. It is possible to have a negative close and a positive TVB, and vice versa. This indicates that the market is building strength on the opposing side of the trend. The Rex Oscillator is a moving average of the TVB, indicating the inertia of the market. When the Rex Oscillator turns positive in a bearish trend, a reversal is indicated. Likewise, Rex turning negative in a bull market indicates a reversal to the downside.

The TVB is defined as:

TVB = (Close-Low) + (Close – Open) – (High – Close), or
= 3 * Close – (Low + Open + High)
Rex Oscillator (n periods) = moving average (n periods) of TVB
The Rex Oscillator also has an optional Signal line which is a simple moving average of the orange line, or the Rex Oscillator.

REX OSCILLATOR G, GRAPH

STARC BANDS G, GRAPH

STARC Bands were developed by Manning Stoller, the term STARC stands for *Stoller Average Range Channels*. Similar to Bollinger Bands, STARC Bands plot two bands around a *simple* moving average (MA). Unlike Bollinger Bands, STARC does not plot standard deviation bands; instead it adds or subtracts the *Average True Range (ATR)* to the MA. The ATR is often multiplied by a factor (the default setting is 2.0 in Bloomberg) before being added or subtracted to the MA. The default MA is 6 and the ATR is set to 14.

Traders look at prices that have risen to the upper band as low risk entry points for long/short sales; prices that reach the lower band are taken as low risk entry points for longs and opportunities to cover shorts. Further, some traders take a penetration of either band as a signal that there is underlying strength in the security in the direction of the break and that a strong move in that direction will likely continue. Because STARC bands are based on the ATR they will tighten during periods of reduced volatility and widen in unsteady markets. The STARC Bandwidth is a visual representation of the Upper Band – Lower Band; the lower the bandwidth, the lower the volatility in the security, the higher the bandwidth, the more unsteady the market. Lastly, the STARC %B is a visual representation of how far the current close is to the upper or lower band; 100% is an indication that prices are touching the upper band, 0% is an indication that prices are touching the lower band.

STARC BANDS G, GRAPH

STOCHASTICS G, GRAPH

Stochastics help to identify when a price move is overextended.
George Lane designed stochastics as a way to identify price swings. The indicator measures the current price relative to the highest high and lowest low over a period of time. In an uptrend, the stock should be near its highest levels, and the opposite in a downtrend. A divergence would suggest a reversal in trend.

%K = [(current close - low for period) / (high for period - lowest low price for period) * 100

A buy signal is generated when both lines become oversold and the %K line crosses up through the %D line. A sell signal is generated when both lines become overbought and the %K line crosses down through the %D line.

Slowed stochastics uses moving averages of the %D line, represented by the %DS and %DSS lines. As these lines are smoothed out even further, they tend to reduce noise and give purer signals of momentum change.

STOCHASTICS G, GRAPH

TRENDER G, GRAPH

Trender identifies price swings based on the daily trading range.

Trender uses Average True Range (ATR), exponential smoothing, and standard deviation as inputs. The resulting indicator is a trend-following approach similar to Parabolic Studies and Bollinger Bands.

In an uptrend, a green support line will appear below the price. If the price trades below the line but closes above, this represents a short-term buying opportunity. A sell signal is generated when price closes below the green support line.

In a downtrend, a red resistance line will appear above the price. If the price trades above this line but closes below, the price should trade lower in the short-term. A buy signal is generated when price closes above the red resistance line.

For more information on Trender type **DOCS TRENDER <GO>**.

TRENDER G, GRAPH

TRIX INDICATOR G, GRAPH

The TRIX Index is the percent rate-of-change of a triple smoothed exponential moving average of a securities closing price. The Bloomberg default number of periods to be averaged is 14. Because the TRIX is a tripled-smoothed average, it is designed to withstand market noise and alert traders to the predominant trend in the market. Traders often use a change of slope from positive to negative as a sell signal and moves from negative to positive as a buy signal. To further filter out false signals, a buy signal is often taken when the TRIX turns up from below zero, sell signals are taken when the TRIX turns down from above zero. Like many other oscillators, divergences between the TRIX index and price are used to add weight to the previously mentioned buy and sell signals.

TRIX INDICATOR

G, GRAPH

VOLUME INTERPRETATION G, GRAPH

Interpreting volume patterns in your chart analysis can aid in confirming the direction of price. Typically, the following rules hold as the meaning of volume trends

Rising volume and rising price = Strong uptrend (Lines 3)
Rising volume and falling price = Strong downtrend (Lines 1)
Falling volume and rising price = Weak rally (Line 4)
Falling volume and falling price = Weak pullback (Line 2)

Looking at the above graph of BJ's Wholesale Club Inc. we can see price was in a downtrend from the middle of July to the middle of August. Lines labeled 1 highlight decreasing stock price and increasing volume confirming the downtrend. Price began to consolidate and volume began to decline during late August. Lines labeled 2 point out the side ways price movement and the declining volume. This indicated the downtrend was consolidating. The morning star pattern surfaced and volume began to pick up signaling the beginning of an uptrend. Price and volume rallied as pointed out by lines labeled 3 indicating a strong uptrend. Price then began to consolidate and volume began decreasing at lines labeled 4. This is another period of consolidation. This formation happens to look like a short term continuation pattern called a Flag. Looking forward we would want to see price break above the green resistance level with an increase in volume to confirm a continuation of the uptrend.

VOLUME INTERPRETATION G, GRAPH

VOLUME AT TIME G,VAT, IGPV

Volume plays an important role in predicting the direction of a security's price. It is believed to measure the urgency and strength behind a price move. By utilizing the new VAT function on Bloomberg or adding the Volume at Time indicator to your Launchpad graph you can now see the following:

1. Actual volume (white histogram) compared to the average volume (blue dash) over the last X years for that date. Average volume will project forward to show how it has acted in the past.
2. Volume differential is a comparison of actual volume to the average volume plotted as a histogram. Green indicates greater volume then average, red indicates less volume then average.
3. Daily Accumulated Volume displays the total volume year to date plotted as a line and compares it to the total average volume year to date.
4. Accumulated Volume Difference displays the spread between the Daily Accumulated Volume and the Daily Accumulated Average Volume.

Take a look at the graph below and see how Verizon Communications challenged resistance at $38.50 for a few days as volume fell well below the average leading to a price decline.

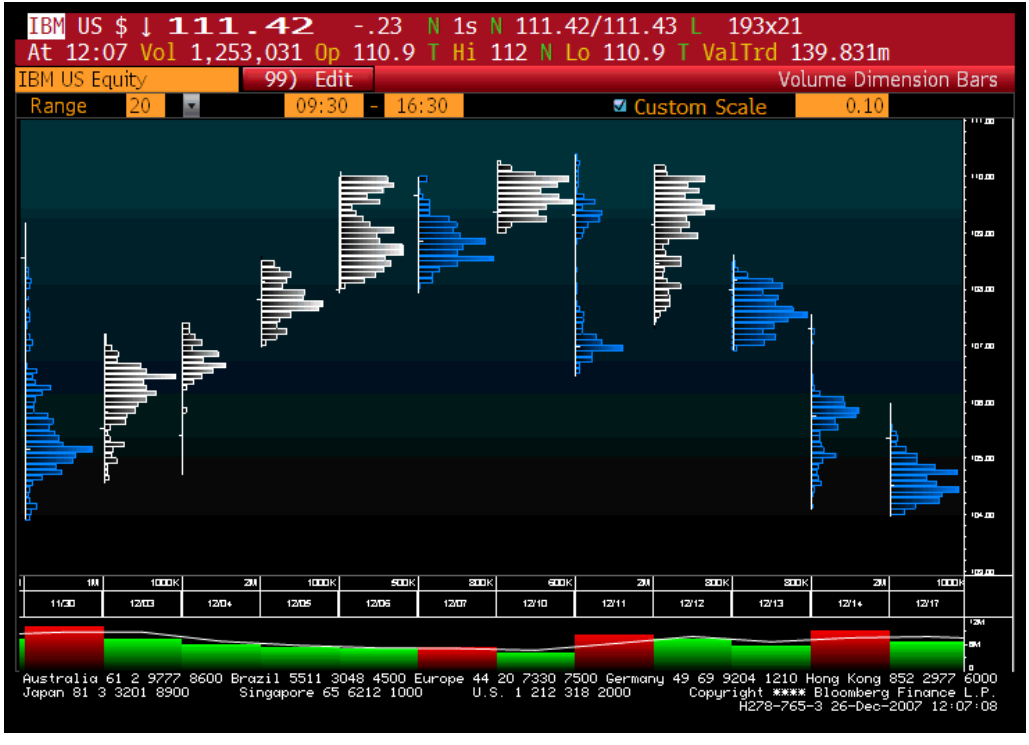
VOLUME AT TIME

G,VAT, IGPV

VOLUME BAR DISTRIBUTION VBAR

VBAR was created to show volume at price over time. In the below image a twenty day chart of IBM is displayed showing the OHLC of price over the last twenty days with the amount of volume that occurred at throughout the each day horizontally. Traders and analysts like to use this page to identify support and resistance levels based on the lack of volume and to confirm the breaking of significant levels on high volumes. Other key things to look at over time are the location of the distribution in the range, the kurtosis and skewness of volume. The colors of the distributions can mean different things based on settings. Click on the red “Edit” button to see the available options and your current settings. At the bottom of the page is a total volume histogram that will highlight green if its greater than average and red if its less than average.

VOLUME BAR DISTRIBUTION VBAR



WILLIAMS %R G, GRAPH

Williams %R measures price momentum to identify overextended moves.

Williams %R, developed by Larry Williams, is similar to other momentum-based oscillators. Price action is evaluated over a rolling *n* days in order to detect extreme markets and potential reversal points.

The calculation of Williams %R is as follows:

$$\frac{\text{(Highest high in } n \text{ periods - today's close)} * (-100)}{\text{Price } n \text{ periods ago}}$$

The %R oscillator value ranges from -100 to 0. A value above -20 suggests a possible overbought condition, and value below -80 suggests a possible oversold condition. This does not mean price will immediately reverse once either of these levels is reached. Prices can remain overbought or oversold for long periods of time, commonly seen in trending phases.

WILLIAMS %R G, GRAPH

ALERTS ALRT

The function on Bloomberg, ALRT<GO>, allows a user to monitor up to 3000 security alerts in regards to Price, Analyst Recommendations, Corporate Actions, Company Events and Filings, Ratings Changes, Technical Studies, Earnings Estimates and Changes, Option Block Trades, Multi-Security Combination Alerts, Spreads, Ratios and Butterflies, Execution Management, TSOX Orders, Time Alerts, and Economic Events.

In regards to Technical Analysis, you can set alerts on 15 indicators with more coming in 2010. The image below shows ALRT<GO> 1<GO> 6<GO> selecting Step 2 to show the studies. If you follow the four steps written in blue font, it's quick and easy to set up an alert on a list of securities for a particular technical signal.

Also useful is setting an alert from a G chart for a security your analyzing. To do this, right click on a study, hover on the study in the menu list, then choose "Alert…" and enter the appropriate information in the window that opens and click "Update."

ALERTS ALRT


<HELP> for explanation.
Index ALRT
Enter securities and select criterion, <MENU> to return
2) Send
3) Delete
4) Properties
Create Study Alert
Step 1. Select Securities to Alert on
Last Trade
Security
Step 2. Select Study
Step 4 (Optional). Customize Study
Moving Averages
1 Moving Averages
2 Highs and Lows
- Oscillators -
3 Rate of Change
4 RSI (Relative Strength Index)
5 Bollinger Bands
6 Keltner Bands
7 Moving Average Envelopes
8 Stochastics
9 MA Oscillator
- Trend Indicators -
10 MACD (Mov Avg Conv./Divergence)
11 DMI (Directional Movement Ind.)
12 Parabolic Systems
13 Ichimoku / GOC
- Bloomberg Studies -
14 Fear/Greed
15 Trender
Frequency
Once Per Day
Notes

BACKTESTING BTST

Backtesting on Bloomberg is an area that will continue to grow with respect to technical analysis in 2010 and beyond. BTST supports the testing of 22 different technical studies compared to a buy and hold strategy on a daily basis for up to five years, a weekly basis for up to twenty five years, and a monthly basis for up to one hundred years.

Each technical study can be adjusted for respective buy, sell, short, and cover signals including multiple actions at once. By clicking on the “Cost” button you can set an investment amount, commission type, rate, and adjust your entry/exit point by entering a slippage figure.

Once you set your parameters, the figures below show you which study performed the best over that time period. Each column can be sorted by clicking on the title. In the example below, the Rate of Change study performed best. We also display statistical information in regards to Max Drawdown, Sharpe Ratio, and Average Duration. Each study can be clicked on to see the price chart with trade dates, a P/L line and strategy specific statistics.

BACKTESTING BTST

CAL US Equity | 97) Hide | 98) Cost | 99) Feedback | Strategy Backtesting

05/12/2005 - 05/12/2010 | Custom | Daily | Capital 100k | Local CCY

		Trades			Profit (Loss)				Statistics			
Strategy		Long	Short	Total	Total ↑	%Total	Long	Short	P/L	%MaxDD	Sharpe	Avg Dur
1. ROC		80	81	161	850.12k	850.12	823.55k	26.57k	1.82	55.41	1.01	11.3
2. Radar1FG		48	49	97	414.81k	414.81	398.56k	16.26k	1.97	51.35	0.85	18.7
3. GOC		14	14	28	410.03k	410.03	384.95k	25.08k	1.77	74.54	0.77	65.2
4. EMAvg		151	150	301	249.44k	249.44	297.58k	-48.14k	1.90	51.34	0.54	6.0
5. MAO		69	70	139	210.29k	210.29	525.68k	-315.39k	1.00	65.31	1.48	13.1
6. WMAvg		180	179	359	78.91k	78.91	171.09k	-92.17k	1.53	90.61	0.52	5.1
7. Buy & Hold		1	0	1	73.72k	73.72	73.72k	0.00	0.00	87.10	0.03	1827.0
8. Boll		17	17	34	65.25k	65.25	58.07k	7.17k	0.37	82.56	0.16	53.1
9. TE		17	17	34	65.25k	65.25	58.07k	7.17k	0.37	82.56	0.16	53.1
10. VMAvg		77	77	154	36.06k	36.06	95.62k	-59.56k	1.99	63.07	0.39	11.9
11. ADOsc		339	338	677	34.36k	34.36	109.74k	-75.38k	1.33	61.10	-0.50	2.7
12. PTPS		54	55	109	10.95k	10.95	148.18k	-137.23k	1.10	83.21	1.17	16.6
13. SMAvg		159	158	317	10.50k	10.50	108.98k	-98.48k	1.56	75.41	0.22	5.7
14. DMI		58	58	116	-32.61k	-32.61	59.57k	-92.18k	1.95	74.57	0.77	15.7
15. TMAvg		169	168	337	-39.16k	-39.16	56.18k	-95.34k	1.46	94.76	0.01	5.4
16. MACD		50	51	101	-45.66k	-45.66	134.45k	-180.11k	1.49	89.67	0.51	18.1
17. TAS		55	54	109	-79.41k	-79.41	-3.84k	-75.57k	0.43	102.74	-1.30	16.7
18. CMCI		31	31	62	-93.66k	-93.66	-22.08k	-71.58k	0.35	102.50	-1.96	29.0
19. Rex		238	237	475	-94.02k	-94.02	-3.93k	-90.09k	1.10	98.07	-1.09	3.8
20. MAE		37	37	74	-98.62k	-98.62	-21.86k	-76.76k	0.17	99.21	-4.09	24.6
21. KBand		32	32	64	-99.23k	-99.23	-26.26k	-72.98k	0.08	107.15	-4.18	28.3
22. Wm		29	29	58	-99.30k	-99.30	-17.20k	-82.10k	0.28	103.78	-3.99	31.3

BLOOMBERG TECHNICAL STRATEGY NI BLPTECSTRT

Every week Bloomberg's Application Specialist team discusses the markets from a technical perspective. Go to GRAPH<go> and click on option 73<go> "Weekly Technical Strategies" to find the most recent analysis on the markets. From the red toolbar choose the 'Save' button to generate an alert each time a new story is posted

Also included in the weekly document is a section for product enhancements, chart school, seminar updates, and book releases.

BLOOMBERG TECHNICAL STRATEGY NI BLPCHRT

CHART OF THE DAY CHART

CHART<GO> is home to the interesting relationships occurring in the market written by Bloomberg's News Division. Each story will include a description of a market relationship that may be the root cause of a change or continuation of a trend. These stories may also include commentary from market professionals that our reporters and editors interview to obtain other opinions on the relationship at hand.

At the bottom of the story, you'll find a link allowing you to save the chart to your G so you can look back at the relationship in the future. You'll also find the contact information of the reporter and editors so you can contact them with any comments or questions.

CHART OF THE DAY

CHART

CUSTOM STUDIES LITE G<GO>

As the market place for technical studies continues to grow, many people have their own ideas they'd like to try looking at but don't have an easy way to implement them. Bloomberg has created a quick and simple tool to modify, combine, and adjust existing studies on the system. This platform will continue to grow to become more inclusive as its own analytic and across the platform.

If you are interested in learning more about it, please email Paul Ciana at pciana@bloomberg.net. Below is a sample of the interface and a formula calculating the Coppock Study.

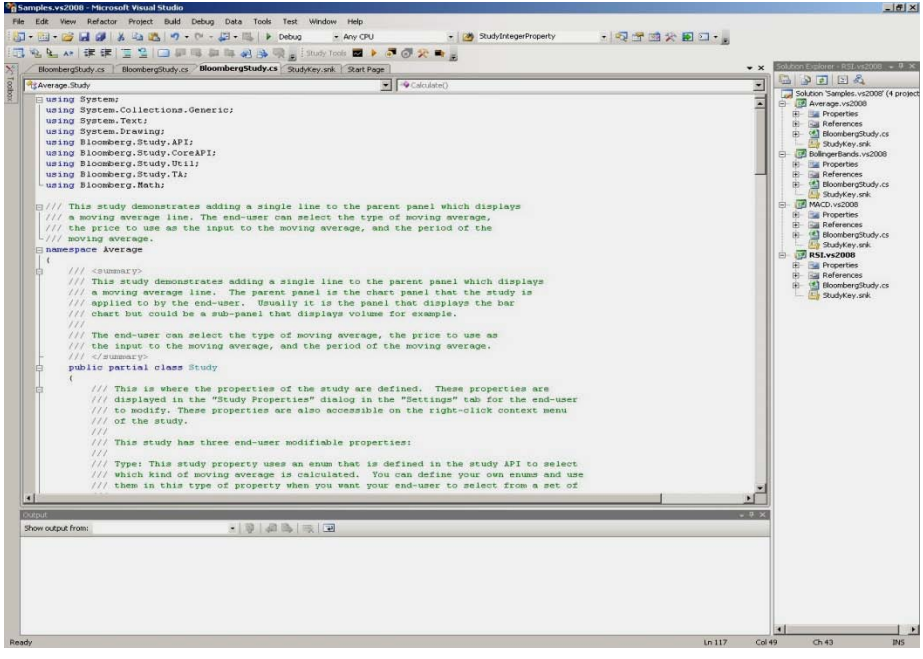
CUSTOM STUDIES LITE G<GO>

CUSTOM STUDIES BLOOMBERG & MS STUDIO

Beyond simple modification of existing studies and the limitations of the CS Lite platform, Bloomberg has developed a custom studies tool for the quantitative programming crowd that speaks with Microsoft Visual Studio 2005 or 2008 (Full Edition) where one can design their own studies in C# or .NET. By having both Bloomberg and Visual Studio, you'll be able to access the vast amount of data sets available in the terminal, design your own indicators, and eventually share, test, and optimize them.

If you are interested in learning more about it, please email Paul Ciana at pciana@bloomberg.net. Below is a sample of the Microsoft Visual Studio interface and some sample code.

CUSTOM STUDIES BLOOMBERG & MS STUDIO



EQUITY SCREENING EQS

In addition to alerts, it can also be helpful to filter for a list of securities based on various criteria including technical, fundamental, and cross asset information. EQS<GO> allows you to do this. The image below is showing a search I created to detect securities that are in the beginning of a pullback after a strong rally higher. It specifies the RSI 14 day be greater than 70, Price is greater than the 200 day moving average, the closing price yesterday is less than the 5 day moving average, and the MACD1 is greater than the MACD Signal. These combined signals may suggest stocks that are in an uptrend and experience a pause or a minor pullback which could be a potential entry point.

Other criteria can certainly be used. Try typing EQS<GO> and clicking into the amber field in the center and typing a world like “Volatility” or “CDS” or “P/E.” All of these types of data sets are readily available.

To take the search to another level, you can go into ALRT<GO> 1<GO> 6<GO> and monitor the results of search for addition information. Something you might consider on a search like this is an alert for when RSI 14 crosses below 40. If the stock is truly in an uptrend, RSI 14 should stay above 40. If it looks like its basing, it may be a potential entry point.

EQUITY SCREENING EQS

EVENTS ON A CHART G, GP E

When painting a picture of past performance, one may know when a company released earnings, when a country announced its GDP, when the Department of Energy released oil inventories, or when a technical indicator signal occurred. Bloomberg's custom G chart allows one to flag or paint the day historically an event occurred. We currently support eleven categories of events and they are:

The image on the next page shows how you can overlay events on a chart with flags and through painting bars, as well as using the track at the bottom of the chart. On price, there are yellow flags showing the buy and sell signals from MACD, green and red flags for price pattern notification, and magenta colored bars for US DOE Crude Oil Inventory release. The bottom of the chart shows US Leading Indicators and US Production statistics. All of this information with two moving averages and RSI.

EVENTS ON A CHART G, GP E

IDENTIFYING PRICE PATTERNS LTEC, ATEC, CTEC

One of the core principles of Technical Analysis is that “History Repeats Itself.” The root of this principle suggests past market moves are reliable in determining where the market is headed because price on a chart reflects the emotions and psychology of the market. These market moves are called “price patterns.” A few popular ones are double tops and bottoms, head and shoulders, triangles etc.

The ability to automatically identify these patterns on a chart, made possible by a company called Recognia, will allow you to spot trends and learn more about the patterns. To find these patterns, you can run ATEC<go> and you’ll see all of the patterns occurring on about 50 exchanges worldwide. To limit these results, try running LTEC<go> and selecting a list of securities. Click on a resulting news story and you’ll see that it explains the pattern and also provides a link to see the pattern on a chart. If you want to see price pattern history on only one security, load that security into a Bloomberg window and type CTEC<go>.

If you are currently using a G or LP chart, you can click on the grey “Events” button and toggle “Chart Patterns” to the on position to view them historically on a chart. Clicking on the icon on the chart will then display the pattern. Clicking on the icon again will turn it off.

IDENTIFYING PRICE PATTERNS LTEC, ATEC, CTEC

TECHNICAL ANALYSIS NEWS NI TA

Bloomberg categorizes news stories into various news wires. These stories come from many sources including contributors to the system sharing their market views and Bloomberg reporters interviewing market participants. Any news story related to technical analysis can be found on NI TA<Go>. Using this news wire in a custom NLRT<go> search is a great way to discover the Technical Analysis news on the securities you care about.

Run NI TA<Go> and try using the grey buttons at the top to filter the news to things you care about. Once you find reasonable results, click the red “Save” button. This search will then save into your NLRT<go> page. Use NLRT to manage and further customize this search, and also choose how to receive the stories that may be important to you.

TECHNICAL ANALYSIS NEWS NI TA