Trading Rules

1. Trade in the direction of the slope of a trendline. If it points up, look for buying opportunities and avoid shorting. When the slope is down, trade from the short side and avoid buying.
2. A trendline provides support or resistance. When prices rise, place buy orders at the uptrendline and protective orders below. Reverse the procedure in downtrends.
3. Steep trendlines precede sharp breaks. If a trendline is steeper than 45°, place your stop right at the trendline and adjust it daily.
4. Prices often retest their latest extreme after breaking a steep trendline. A pullback rally to an old high on falling volume and with indicator divergences provides an excellent shorting opportunity. A decline to an old low after a downtrendline is broken provides a low-risk buying opportunity.
5. Draw a channel line parallel to a trendline and use it as a target for profit taking.

Trendline Channels

A **channel** consists of two parallel lines that contain prices (Figure 21-4). If you draw an uptrendline across the bottoms of reactions, you can draw a channel line parallel to it across the tops of rallies. When you draw a downtrendline across the tops of rallies, you can also draw a channel line parallel to it across the bottoms of declines.

Channel lines, like trendlines, should be drawn across the edges of congestion areas, leaving out the extreme highs and lows. The presence of a channel line reinforces the validity of the trendline itself. The validity of channel lines depends on how many times they were touched by prices.

A channel line marks the area of bulls' maximum power in an uptrend and bears' maximum power in a downtrend. The wider the channel, the stronger the trend. It pays to trade in the direction of the channel's slope, going long in the lower quarter or half of a rising channel and selling short in the upper quarter or half of a falling channel. Profits should be taken at the opposite channel wall (see also Section 45).

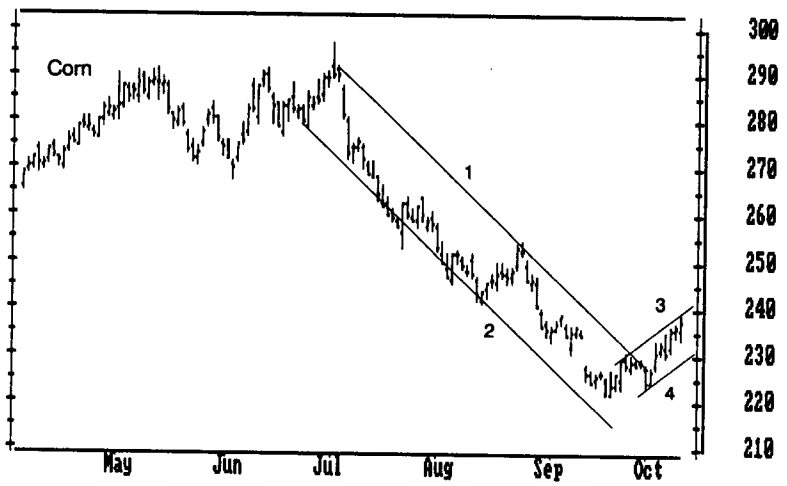


Figure 21–4. Trendline Channels and Preliminary Trendlines

The downtrendline 1, drawn across rally peaks, identifies a bear market in corn. A channel line 2 is drawn across the lows, parallel to the trendline. The channel line helps track the maximum power of bears in a downtrend. The best shorting opportunities are in the upper half of a falling channel, while the best buying opportunities are in the lower half of a rising channel.

When prices break out above their downtrendline, channels can help you draw a preliminary uptrendline. First, draw a new channel line 3 to connect the last two rally tops. Then draw line 4 parallel to it, touching the latest bottom. This is the new preliminary uptrendline.

At the right edge of the chart, corn is trending higher. It is expensive–near its upper channel line. If you want to go long, place an order to buy in the vicinity of the new uptrendline 4.

A Preliminary Trendline

Normally, a trendline touches at least two points on a chart. There is a little-known technique for drawing a preliminary trendline through only one point (Figure 21-4).

When prices break their downtrend and rally above it, you can assume that the downtrend has ended and a new uptrend may begin. Connect the two latest peaks – this is the channel line of the new uptrend. Draw a line parallel

to it through the latest low. This preliminary uptrendline, drawn parallel to a channel line, tells you where to expect the next bottom. It often points to excellent buying opportunities. This procedure tends to work better at bottoms than at the tops.

More on Trendlines

When prices break their uptrend, measure the **vertical distance** from the trendline to the latest top and project it down from the breaking point. If the crowd can become optimistic enough to swing prices so many dollars above the trendline, then it is likely to become equally pessimistic and swing prices the same distance down from the trendline. Reverse this procedure in downtrends. This method gives you the minimum target for a new move, which is often exceeded.

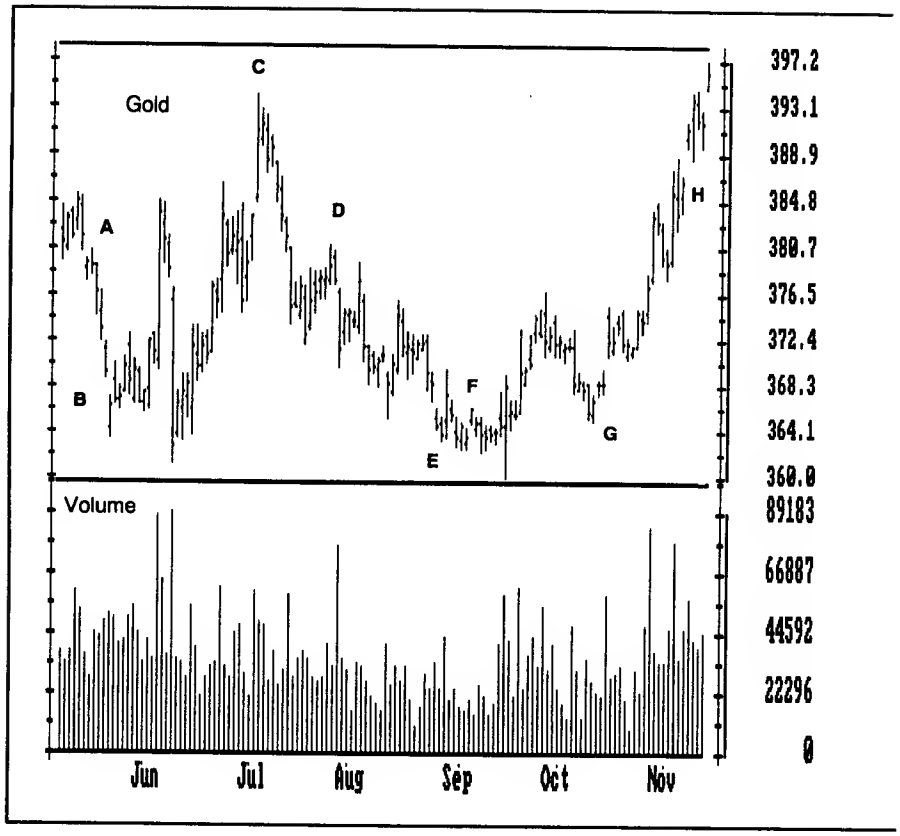
Trendlines can also be applied to **volume** and to **indicators**. The slope of a trendline of volume shows whether more or fewer people are becoming involved in the market. A rising trendline of volume confirms the current price trend. A falling trendline of volume shows that the market crowd is refusing to follow the current price trend. Among technical indicators, the Relative Strength Index (see Section 31) is especially well suited for trendline analysis. It often breaks its trendlines in advance of prices, providing an early warning of a trend change.

22. GAPS

A **gap** is a chart pattern that consists of two adjacent bars, where the low of one bar is higher than the high of the other bar (Figure 22-1). It shows that no trades took place at a certain price, only at higher and lower levels. *Webster's Dictionary* defines: "Gap: 1. a hole or opening, as in a wall or fence, made by breaking or parting; breach. 2. an interruption of continuity in space or time; hiatus; lacuna."

Gaps occur when prices jump in response to a sudden imbalance of buy or sell orders. A scary piece of news often triggers gaps. Gaps on daily charts show reactions to events that took place while the market was closed. Had the news come out during trading hours, a gap might have occurred only on intraday charts and perhaps have led to a wider daily range.

For example, a strike at a major copper mine is bullish for copper. If the news comes out in the evening, the shorts become frightened and want to



cover. They flood the pit with buy orders before the opening bell. Floor traders respond by opening copper above the previous day's high. The smart money, incidentally, has probably bought copper before the strike was announced. Smart money tends to put on trades when markets are quiet, but amateurs tend to jump on the news.

Gaps show that the trading crowd is spooked, that losers are getting hurt and dumping their positions. When you know that bulls or bears are hurting, you can figure out what they are likely to do next and trade accordingly.

Some gaps are valid; others are phony. Valid gaps occur when the market skips a price level. Phony gaps occur when a financial instrument trades in another market while the market you analyze is closed. For example, daily charts of Chicago currency futures are full of phony gaps. Currencies trade in Tokyo, London, and elsewhere while the Chicago Mercantile Exchange is

Figure 22–1. Gaps

Cover this chart with a sheet of paper and slide it slowly from left to right.

A. A breakaway gap. Sell short and place a stop a few ticks above the gap's upper rim.
B. An exhaustion gap–prices pull back into it the next day. The downtrend is over. Cover shorts immediately.
C. Another exhaustion gap, marked by a lack of new highs after the gap. Several days of churning offer good shorting opportunities with a stop above the high.
D. A continuation gap in a downtrend. Go short, with a stop a few ticks above the gap's upper rim. Prices hit that stop a few days later–no method is fail-safe.
E. An exhaustion gap, closed two days after it opened. Cover shorts immediately.
F. A common gap in the midst of a congestion area, closed the next day. No action recommended.
G. A breakaway gap. Go long and place a protective stop a few ticks below the gap's lower rim.
H. A continuation gap. Add to longs and place a protective stop a few ticks below the gap's lower rim. The gap at the right edge of this chart could be either a continuation or an exhaustion gap. Relatively quiet volume suggests continuation. If you buy, place a protective stop a few ticks below the lower rim of this gap.

closed. When the exchange reopens, its prices gap simply to reflect price changes overseas.

All gaps can be divided into four major groups: common, breakaway, continuation, and exhaustion. You need to identify them because each tells a different story and calls for different trading tactics.

Common Gaps

Common gaps are rapidly closed—prices return into the gap within a few days. Common gaps usually occur in quiet trendless markets. They are seen in futures contracts for late delivery, in thinly traded stocks, and at sold-out, low-volume market bottoms.

Common gaps show no follow-through—no new highs after an upside gap or new lows after a downside gap. Volume may slightly increase on the day of a common gap, but the following days show a return to average volume. The lack of new highs or lows and indifferent volume show that neither bulls nor bears have strong feelings about the market. Common gaps are the least useful of all gaps for trading.

Common gaps occur more often than other gaps. It takes very little to create them in a dull market. A Comex floor trader at one of our seminars spoke of how he could push gold up or down $2 an ounce on a quiet day. He was known as a big trader and if he suddenly began bidding for 20 contracts at a time, other floor traders stepped back, figuring he knew something. Gold would gap up, and the trick for him was to sell before that gap was closed.

An **ex-dividend gap** is a common gap that occurs in the stock market on the day a dividend becomes payable. For example, if the dividend is 50 cents, then each share is worth 50 cents less after that dividend is paid. This is similar to a drop in the price of a cow after it delivers a calf. Once the calf is born, the price of the cow falls by the amount of the calf's price because it is no longer included with the cow. Ex-dividend gaps were common in the old days. Today, the average daily range of a dividend-paying stock is greater than the amount of its dividend, and the ex-dividend drop seldom results in a gap.

Breakaway Gaps

A breakaway gap occurs when prices leap out of a congestion zone on heavy volume and begin a new trend. A breakaway gap can remain open for weeks or months, and sometimes years. The longer the range that preceded the gap, the longer the subsequent trend.

An upside breakaway gap is usually followed by new highs for several days in a row, and a downside breakaway gap is followed by a series of new lows. There is a sharp increase in volume on the day of the breakaway gap and for several days after that. Volume on the day of the gap may be twice as high as the average volume for the previous few days.

A breakaway gap marks a major change in mass mentality—it reveals a great pressure behind the new trend. The sooner you jump aboard the new trend, the better.

Most gaps are common gaps that are quickly closed. Professional traders like to fade them—trade against gaps. You have to be careful because if you do it mechanically, sooner or later a breakaway gap will clobber you. It takes deep pockets to hold a losing position for months, waiting for a gap to close.

Continuation Gaps

A continuation gap occurs in the midst of a powerful trend, which continues to reach new highs or new lows without filling the gap. It is similar to a breakaway gap but occurs in the middle of a trend rather than in the beginning. Continuation gaps show a new surge of power among the dominant market crowd. The inflationary bull markets in commodities in the 1970s had many of them.

A continuation gap can help you estimate how far a trend is likely to carry. Measure the vertical distance from the beginning of a trend to the gap, and then project it from the gap in the direction of the trend. When the market approaches that target, it is time to begin taking profits.

Volume confirms continuation gaps when it jumps at least 50 percent above the average for the previous few days. If prices do not reach new highs or new lows for several days after a gap, you are probably dealing with a treacherous exhaustion gap.

Exhaustion Gaps

An exhaustion gap is not followed by new highs during uptrends or new lows during downtrends—prices churn and then return into the gap and close it. Exhaustion gaps appear at the ends of trends. Prices rise or fall for several weeks or months, and then gap in the direction of the trend. At first, an exhaustion gap looks like a continuation gap—a leap in the direction of the trend on heavy volume. If prices fail to reach new highs or new lows for several days after the gap, it is probably an exhaustion gap.

An exhaustion gap is confirmed only when prices reverse and close it. This gap is like the last spurt of a tired athlete. He springs away from the pack but cannot sustain the pace; as soon as others close in on him, you know that he will lose the race.

Trading Rules

1. Common gaps do not offer good trading opportunities, but if you must trade, fade them. If prices gap up, sell short as soon as the market stops reaching new highs and place a protective stop above the high of the past few days; cover shorts and take profits at the lower rim of the

gap. If prices gap down, go long as soon as the market stops reaching new lows and place a protective stop below the low of the past few days; place an order to sell and take profits at the upper rim of the gap.

2. If a market gaps out of a long trading range on a burst of volume and continues to make new highs or lows, you are probably dealing with a breakaway gap. If prices have gapped to the upside, buy and place a protective stop at the lower rim of the gap. A valid breakaway gap almost never gets closed. Reverse the procedure in downtrends. Waiting for a pullback when a new trend has just begun may leave you on the sidelines.
3. Trading a continuation gap is similar to trading a breakaway gap—buy early and place a protective stop at the lower rim of the gap. Reverse the procedure in downtrends. Tighten your stops when a trend approaches its target as projected by the continuation gap.
4. A valid breakaway or continuation gap must be confirmed by a series of several new highs or lows. Otherwise, you may be dealing with an exhaustion gap. If the market refuses to reach new highs or lows in the direction of the gap, exit your trade and re-evaluate the market from the sidelines.
5. Exhaustion gaps offer attractive trading opportunities because they are often followed by violent reversals. When you identify an upside exhaustion gap, sell short and place a protective stop above the latest high. Once prices begin to slide, weak bulls will start bailing out. Stay short as long as prices continue to reach new lows and cover the day after prices fail to make a new low. Reverse the procedure in downtrends. Because of high volatility, exhaustion gaps are easier to trade using options, especially buying puts at the tops.

More on Gaps

An **island reversal** is a combination of a continuation gap and a breakaway gap in the opposite direction. An island reversal looks like an island, separated from the rest of price action by a gulf in which no trading took place. It begins as a continuation gap, followed by a compact trading range with high trading volume. Then prices gap in the opposite direction and leave behind an island of prices. This pattern occurs very seldom, but it marks major reversal areas. Trade against the trend that preceded an island.

It pays to watch for gaps in **related markets**. If gold shows a breakaway gap but silver and platinum do not, then you may get a chance to position for a "catch-up move" in a market that has not yet become frenzied.

Gaps can serve as **support and resistance levels**. If greater volume occurred after an upside gap, it indicates very strong support. If greater volume occurred before the gap, then support is less strong.

Technical indicators help identify types of gaps. The Force Index (see Section 42) is based on price and volume. If Force Index shows only a minor change on the day of a gap, it is probably a common gap. When Force Index reaches a record high or a low level for several weeks, it confirms breakaway and continuation gaps.

Intraday charts show many **opening gaps**, when prices open outside the previous day's range. When there is an imbalance of public buy and sell orders before the opening, floor traders open markets higher or lower. If outsiders want to buy, floor traders sell to them at such a high price that the slightest dip will make them money. If customers want to sell, floor traders will take merchandise off their hands—at a price that is low enough to profit from the slightest bounce. Professionals play it cool—they know that crowds seldom stay excited for long and prices tend to pull back into yesterday's range. They sell above that range or buy below, waiting to unwind their positions and take profits when the opening gap is closed.

If you trade the S&P 500 futures, remember that their opening gaps are almost always closed. If the S&P 500 futures open higher, they almost always sink during the day and touch their previous day's high. If they open lower, they almost always rally during the day and touch their previous day's low. Savvy day-traders tend to sell short higher openings and buy lower openings. This is not a mechanical method—you have to buy or sell only after indicators tell you that the force behind the opening gap has been spent and the market is ready to close the gap.

23. CHART PATTERNS

The patterns you see on your chart or computer screen are the trails left by bulls and bears. A chartist is a hunter who follows subtle signs, visible only to those who know what to look for. Chart patterns can help you decide when a trend is likely to continue or to reverse.

There are two main groups of patterns: continuation and reversal. **Continuation** patterns include flags and pennants. They suggest trading in

the direction of the current trend. **Reversal** patterns include head and shoulders, inverse head and shoulders, and double tops and bottoms. They indicate it is time to take profits on existing positions. Some patterns can serve as either continuation or reversal formations. Triangles and rectangles are notorious for doing that double duty.

When several chart patterns point in the same direction, their signals are reinforced. For example, if an uptrendline gets broken when a head-and-shoulders top is being completed, they both confirm that the uptrend is ending. When different patterns give conflicting messages, their signals cancel one another, and it is better not to trade.

Head-and-Shoulders Tops

A healthy uptrend moves up in steps. Most rallies reach higher peaks than the preceding rally and declines stop at a higher level than the previous decline. When an uptrend fails to reach a higher high or a decline falls below the previous low, it shows that bulls are losing their grip.

Head-and-shoulders tops mark the ends of uptrends (Figure 23-1). The "head" is a price peak surrounded by two lower peaks, or "shoulders." A neckline connects the lows of declines from the left shoulder and the head. The neckline does not have to be horizontal—it may be flat, rising, or falling. A downsloping neckline is especially bearish—it shows that bears are becoming stronger.

When prices fail to rally above the head, they confirm that a head-and-shoulders top is developing. The right shoulder may be higher or lower than the left and may be shorter or longer. The decline from the right shoulder breaks the neckline. When that happens, the uptrend is dead.

After breaking the neckline, prices sometimes pull back to it on low volume. This feeble rally offers an excellent shorting opportunity, with a logical stop just above the neckline.

Head-and-shoulders tops often have typical volume patterns. Volume is often lower on the head than on the left shoulder. It is even lower on the right shoulder. Volume tends to increase when prices break the neckline. When prices pull back to it, volume is very thin.

A head-and-shoulders pattern provides an approximate target for the new downtrend. You can obtain it by measuring the distance from the top of the head to the neckline and projecting this down from the neckline.

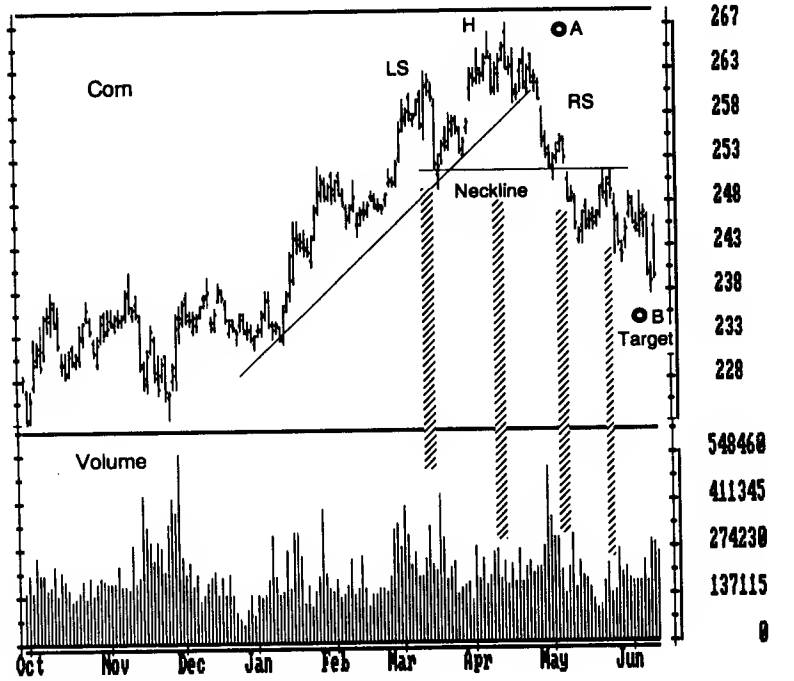


Figure 23–1. Head and Shoulders

An uptrend remains healthy as long as each new rally reaches a new high. Rising volume confirms rallies. Volume falls when prices reach the head (H) and flashes a warning to tighten stops on long positions. The decline from the head breaks the uptrendline and signals that the uptrend is over.

The head, in this case, is an "island reversal" (see "Gaps," Section 22)–a very bearish pattern. Volume shoots up ominously during the decline from the head. The right shoulder (RS) is much smaller than the left–another sign of weakness. Low volume on the right shoulder also points to a good shorting opportunity.

The decline from the right shoulder breaks the neckline. This completes the head-and-shoulders pattern. There is an excellent shorting opportunity when prices pull back to the neckline from below on low volume. The distance from the top of the head to the neckline (A) provides a target for the decline (B). At the right edge of the chart, hold shorts because prices continue to fall on rising volume and have not reached their target; place a protective stop at the top of the past 5 days' range.

Trading Rules

Once you identify a head-and-shoulders top, you need to make two trading decisions: what to do about your long position and how to go about shorting. You have three choices for managing your longs: sell them outright, tighten your stops, or sell some and hold the rest.

Many traders take the fourth choice—they simply freeze and do nothing. Trading is a complex, nontrivial game that demands making decisions in an atmosphere of uncertainty.

Your decision depends on how certain you feel about the pattern. It also depends on the size of your account. A large account allows you to buy and sell gradually. Having to trade a single contract in a small account demands precise timing—it is a good school for a beginning trader.

You must analyze your charts in more than one timeframe (see Section 36). If weekly charts are toppy, a head-and-shoulders pattern on the dailies should prompt you to run for the exit. If weeklies are strong, then it is often better to simply tighten the stops. Technical indicators can also help you decide how urgent it is to sell.

Markets often are more volatile at tops, with wide swings between short-term highs and lows. Selling short and placing a stop above the latest high may expose you to more risk than the maximum amount allowed per contract in your account (see Chapter 10). You may have to pass up the trade or buy puts to keep your monetary risk within allowed limits.

1. Sell when you recognize the head or the right shoulder of a head-and-shoulders pattern, based on low volume, a break of an uptrend, and a divergence between indicators and prices.

2. The decline from the head establishes a neckline. If you still hold a long position, place a stop below the neckline.

3. The rally to the right shoulder is usually marked by low volume and glaring weakness in technical indicators; it offers the last good opportunity to cash out of the uptrend. Technical indicators often reach higher levels on the right shoulder than on the head but they never exceed the levels reached during the left shoulder. When you sell short into the right shoulder, place your stop at the top of the head. Make that order "stop-and-reverse"—if stopped out of the short position, reverse and go long (see "The Hound of the Baskervilles" signal).

4. Once the neckline is broken, a pullback on low volume offers an excellent shorting opportunity, with a protective stop slightly above the neckline.

The Hound of the Baskervilles

This signal occurs when a reliable chart or indicator pattern does not lead to the action you expect and prices move in the opposite direction. A head-and-shoulders pattern indicates that the uptrend is over. If prices continue to rise, they give the Hound of the Baskervilles signal.

This signal is named after the story by Sir Arthur Conan Doyle in which Sherlock Holmes was called to solve a murder at a country estate. He found the essential clue when he realized that the family dog did not bark while the murder was being committed. That meant the dog knew the criminal and the murder was an inside job. The *signal was given by the lack of expected action*—by the lack of barking!

When the market refuses to bark in response to a perfectly good signal, it gives you the Hound of the Baskervilles signal. This shows that something is fundamentally changing below the surface. Then it is time to get in gear with the new powerful trend.

A head-and-shoulders pattern gives a strong sell signal. If the market refuses to collapse but rallies from the right shoulder, it gives you its Hound of the Baskervilles signal. When prices rise above the head, it is time to cover shorts, reverse, and go long. An aborted head-and-shoulders top often leads to a very strong rally. Buy the upside breakout, and place a protective stop slightly below the top of the head.

Inverse Head and Shoulders

Some traders call this pattern a head-and-shoulders bottom—a mirror image of a head-and-shoulders top. It looks like a silhouette of a person upside down: the head at the lowest point, surrounded by two shoulders. This pattern develops when a downtrend loses its force and gets ready to reverse (Figure 23-2).

In a valid downtrend, each new low falls lower than the previous low, and each rally stops at a lower level. A strong rally from the head allows you to

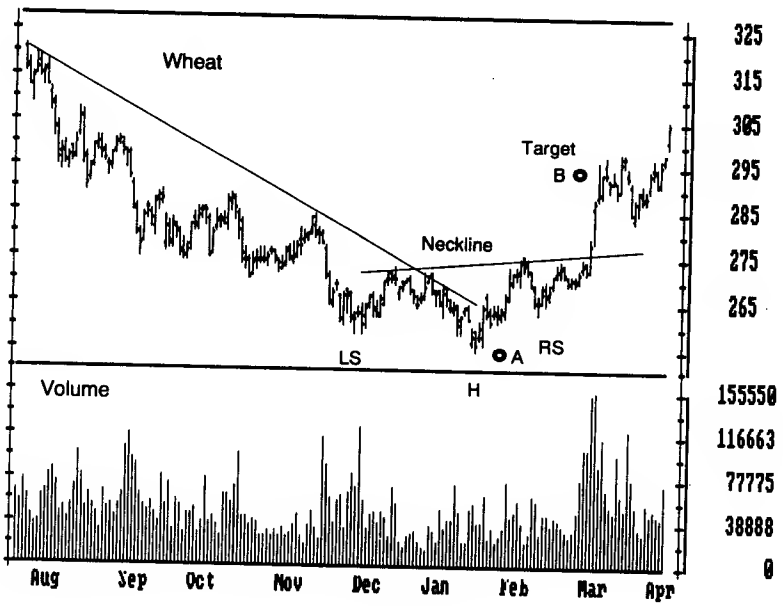


Figure 23–2. Inverse Head and Shoulders

While the downtrend is in effect, high volume confirms all declines until the left shoulder (LS). The decline into the head (H) comes on low volume–a warning to the bears. The rally out of the head breaks above the downtrendline and signals that the downtrend is over.

Low volume during the right shoulder (RS) and the upward-sloping neckline indicate that a powerful rally is coming. The burst of volume during the neckline break confirms the new uptrend. No pullback ever reached this neckline.

The preliminary target (B) is as high above the neckline as the head of the pattern (A) is below it. It is common for rallies out of head-and-shoulders bottoms to exceed their targets. The best buying opportunity was at the right shoulder, with a protective stop a few ticks below the head. At the right edge of the chart, a gap confirms a strong uptrend. Place a protective stop on long positions a few ticks below the gap's lower rim.

draw a neckline. When a decline from the neckline fails to reach the level of the head, it creates the right shoulder. When prices rally from the right shoul-

der above the neckline on increased volume, they complete the head-and-shoulders bottom and a new uptrend begins.

Sometimes a head-and-shoulders bottom is followed by a pullback to the neckline on low volume, offering an excellent buying opportunity. Measure the distance from the bottom of the head to the neckline and project it upward from the point where the neckline was broken. This gives you a minimum measurement for a rally, which is frequently exceeded.

The tactics for trading inverse head and shoulders is similar to head-and-shoulders tops. You risk less money trading at bottoms because prices are less volatile, and you can use closer stops.

Rectangles

A **rectangle** is a chart pattern that contains price movements between two parallel lines. They are usually horizontal but can sometimes slant up or down (see "Lines and Flags," later in this section). Rectangles and triangles can serve as continuation or reversal patterns.

You need four points to draw a rectangle: The upper line connects two rally tops, and the lower line connects two bottoms (Figure 23-3). These lines should be drawn through the edges of congestion areas rather than across the extreme highs and lows (see Section 19).

The upper line of a rectangle identifies resistance, while the lower line identifies support. The upper line shows where bulls run out of steam; the lower line shows where bears become exhausted. A rectangle shows that bulls and bears are evenly matched. The key question is whether bulls or bears will eventually win the battle within this pattern.

If volume swells when prices approach the upper border of a rectangle, an upside breakout is more likely. If volume increases when prices approach the lower border, a downside breakout is more likely. A valid breakout from a rectangle is usually confirmed by an increase in volume—one-third to one-half higher than the average of the previous five days. If volume is thin, it is likely to be a false breakout.

Rectangles tend to be wider in uptrends and narrower in downtrends. The longer a rectangle, the more significant a breakout. Breakouts from rectangles on weekly charts are especially important because they mark important victories for bulls or bears.

There are several techniques for projecting how far a breakout is likely to go. Measure the height of a rectangle and project it from the broken wall in

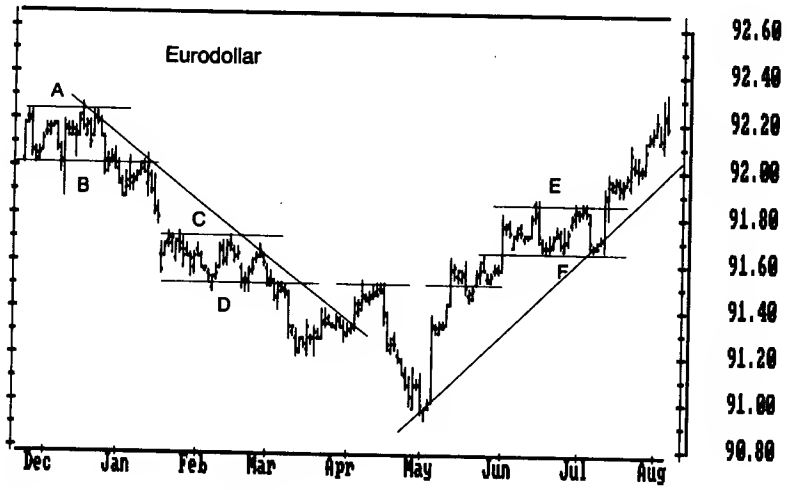


Figure 23–3. Rectangles

The upper border of each rectangle is drawn across two or more highs. The lower border is drawn across two or more lows. A rectangle may serve either as a continuation or a reversal pattern. As long as a major trendline is intact, a rectangle is more likely to serve as a continuation pattern.

After prices break out of a rectangle, they often return and touch its wall from the outside (B, D, and E). These pullbacks offer excellent entries into low-risk trades in the direction of the breakout, with a protective stop inside the rectangle.

The same price levels tend to serve as both support and resistance. Notice how line D turned from support into resistance and back into support. At the right edge of the chart, prices are well above their uptrendline, and it is better to wait for a pullback before buying.

the direction of the breakout. This is the minimum target. The maximum target is obtained by taking the length of the rectangle and projecting it vertically from the broken wall in the direction of a breakout. Tony Plummer writes that a rectangle is a part of a spiral-like development of a trend. He recommends measuring the height of a rectangle, multiplying it by three

Fibonacci ratios (1.618, 2.618, and 4.236), and projecting those measurements in the direction of the breakout to obtain a price target.

Trading Rules

Floor traders can profit from trading short-term swings between a rectangle's walls, but the big money is made by trading in the direction of a breakout.

1. When trading within a rectangle, buy at the lower boundary and sell short at the upper boundary. Oscillators can help you decide when prices are ready to reverse within a rectangle. Stochastic, the Relative Strength Index, and Williams %R (see Chapter 4) mark price reversals within rectangles when they hit their reference lines and change direction.

   If you buy at the lower border of a rectangle, place your protective stop slightly below that rectangle. If you sell short near the upper wall of a rectangle, place a protective stop slightly above that border. You have to be very nimble and take profits at the first sign of a reversal. It is dangerous to hold on for a few extra ticks within a rectangle.

2. To find out whether an upside or a downside breakout is more likely, analyze the market in a longer timeframe than the one you are trading. If you want to catch a breakout on a daily chart, identify the weekly trend because a breakout is more likely to go in its direction (see Section 43).

3. Once you buy an upside breakout or sell short a downside breakout, place your protective stop slightly inside the rectangle. There may be a pullback to the rectangle wall on light volume, but prices should not return into a rectangle after a valid breakout.

Lines and Flags

A **line** is a kind of a rectangle—a lengthy congestion area. In Dow theory, a line is a correction against the primary trend. It is a congestion zone whose height is approximately 3 percent of current stock market value. When the stock market "draws a line" instead of reacting more deeply against its major trend, it shows a particularly strong primary trend.

A **flag** is a rectangle whose boundaries are parallel but slant up or down.

Breakouts tend to go against the slope of the flag. If a flag slants upward, a downside breakout is more likely. If the flag slants down, an upside breakout is more likely.

If you see a downsloping flag in an uptrend, place a buy order above the latest peak of the flag to catch an upside breakout. A rising flag in an uptrend marks distribution, and a downside breakout is more likely. Place an order to sell short below the latest low of that flag. Reverse the procedure in downtrends.

Triangles

A **triangle** is a congestion area whose upper and lower boundaries converge on the right (Figure 23-4). It can serve either as a reversal or, more often, as a continuation pattern. Some technicians call triangles **coils**. The market winds up and the energy of traders becomes compressed, ready to spring from a triangle.

A small triangle whose height is 10 to 15 percent of the preceding trend is more likely to serve as a **continuation** pattern. Many uptrends and downtrends are punctuated by these triangles, as sentences are punctuated by commas. Large triangles whose height equals a third or more of the preceding trend are more likely to serve as **reversal** patterns. Finally, some triangles simply fizzle out into listless trading ranges.

Triangles can be divided into three major groups, depending on their angles. The upper and lower lines of **symmetrical** triangles converge at the same angles. If the upper line is inclined 30 degrees to the horizontal, then the lower line is also inclined 30 degrees. Symmetrical triangles reflect a fair balance of power between bulls and bears and are more likely to serve as continuation patterns.

An **ascending** triangle has a relatively flat upper boundary and a rising lower boundary. Its flat upper boundary shows that bulls are maintaining their strength and can lift prices to the same level, while bears are losing their ability to drive prices lower. An ascending triangle is more likely to result in an upside breakout.

A **descending** triangle has a relatively flat lower boundary, while its upper boundary slants down. Its flat lower boundary shows that bears are maintaining their strength and continue to drive prices down, while bulls are losing their capacity to lift prices. A descending triangle is more likely to lead to a downside breakout.

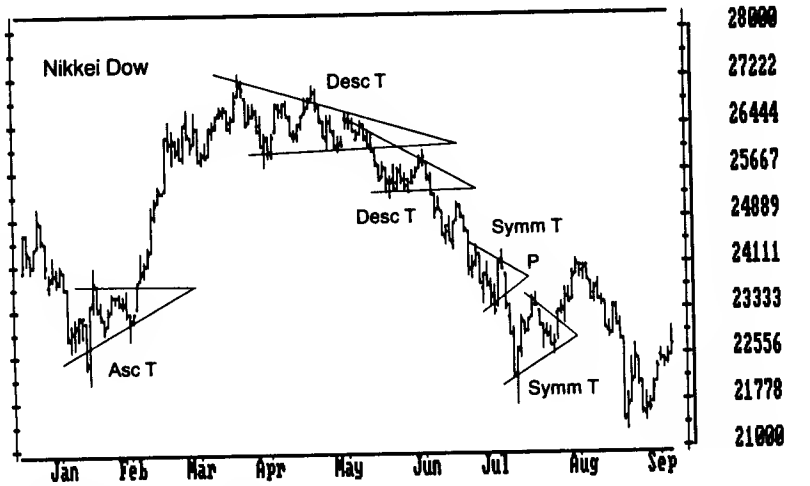


Figure 23–4. Triangles

Each triangle is defined by two converging lines. The upper line connects two or more peaks, and the lower line connects two or more bottoms.

A triangle whose lower boundary is rising is called an ascending triangle (marked Asc T on the chart). It tells you to expect an upside breakout. A descending triangle (Desc T) has a declining upper boundary. It shows that prices are more likely to break down. A symmetrical triangle (Symm T) shows that the forces of bulls and bears are evenly matched and the trend is likely to continue.

Valid breakouts tend to occur during the first two thirds of a triangle's length. Sometimes prices pull back to a triangle after a breakout. Those pullbacks offer excellent entry points into trades in the direction of the breakout.

Volume tends to shrink as triangles get older. If volume jumps on a rally toward the upper boundary, an upside breakout is more likely. If volume becomes heavier when prices fall toward the lower boundary, a downside breakout is more likely. Valid breakouts are accompanied by a burst of volume – at least 50 percent above the average for the past 5 days.

Valid breakouts occur during the first two thirds of a triangle. It is better not to trade breakouts from the last third of a triangle. If prices stagnate all the way into the apex, they are likely to remain flat. A triangle is like a fight between two tired boxers who keep leaning on each other. An early breakout shows that one of the fighters is stronger. If prices stay within a triangle all the way into the apex, that shows that both boxers are exhausted and no trend is likely to emerge.

Charts of related markets often show triangles at the same time. If gold, silver, and platinum all trace triangles and gold breaks out to the upside, then platinum and silver are likely to follow. This approach works well with currencies, especially with closely related ones, such as the German Mark and Swiss Franc. It also works with stocks in the same group—compare General Motors to Ford but not to IBM.

Triangles provide a minimum target for a move following a breakout. Measure the height of a triangle at its base and project vertically from the point where the triangle was broken. If you are dealing with a small triangle in the midst of a dynamic trend, that minimum measurement is likely to be exceeded. You can also use the Fibonacci projections mentioned earlier.

Trading Rules

It's better not to trade minor swings within a triangle unless that triangle is very large. As a triangle grows older, the swings become narrower. Profit potential shrinks, while slippage and commissions continue to take just as bad a bite from your account as before.

1. If you trade inside a triangle, use oscillators such as Stochastic (see Section 30) and Elder-ray (see Section 41). They can help you catch minor swings.

2. In trying to decide whether a triangle on a daily chart is likely to lead to an upside or a downside breakout, look at the weekly chart (see Section 43). If the weekly trend is up, then a triangle on the daily charts is more likely to break out to the upside, and vice versa.

3. When you want to buy an upside breakout, place a buy order slightly above the upper boundary of a triangle. Keep lowering your order as the triangle becomes narrower. If you want to short a downside break-

out, place a sell order slightly below the lower boundary. Keep raising it as the triangle becomes narrower. Once you are in a trade, place a protective stop slightly inside the triangle. Prices may pull back to the wall, but they should not return deep inside a triangle following a valid breakout.

4. When a breakout from a triangle is followed by a pullback, pay attention to volume. A pullback on heavy volume threatens to abort the breakout, but a pullback on light volume offers a good opportunity to add to your position.
5. When prices approach the last third of a triangle, cancel your buy or sell orders. Breakouts from the last third of a triangle are very unreliable.

Atypical Triangles

A **pennant** is a small triangle whose lines are slanted in the same direction. Pennants that slant against the trend serve as continuation patterns. There is an old saying "The pennant flies at half-mast"—a rally is likely to travel as far after the pennant as it did before. A pennant that slants in the direction of the trend indicates exhaustion—a trend is nearing a reversal.

A **widening triangle** occurs when prices set a series of higher highs and lower lows. This pattern shows that the market is becoming hysterically volatile, with bulls and bears pouring in. The fight between bulls and bears becomes too hot for the uptrend to continue—a widening triangle kills an uptrend.

A **diamond** starts out as a widening triangle and ends as a symmetrical triangle. You have to squint very hard to recognize it. Diamonds are prime examples of Rorschach-type patterns for chartists. If you look long enough, you will find them, but their trading usefulness is minimal. I used to look for diamonds . . . and most of them were fake zirconium.

Double Tops and Bottoms

Double tops occur when prices rally to the area of the previous high. Double bottoms occur when prices fall near the previous low. The second top or bot-

tom can be slightly above or below the first. This often confuses beginning analysts.

Savvy traders use technical indicators to identify double tops and bottoms. They are often marked by bullish and bearish divergences. Buying at double bottoms and selling short at double tops offer some of the best trading opportunities.

IV

Computerized Technical Analysis

24. COMPUTERS IN TRADING

To be a successful trader, you must understand markets better than your competitors do. You can analyze them more thoroughly using a computer. Many traders who compete with you in the markets already have these machines.

Manual charting can help you develop an intuitive, physical feel for prices. You can buy some graph paper and plot several stocks or commodities each day. Once you post your charts, write down at what level you will be a buyer or a seller and where you will place your stops.

After you do that for a while, you will probably want to analyze more markets using technical indicators. Then it is time to look for a computer and technical analysis software.

Driving or Walking

A trader without a computer is like a man traveling on a bicycle. His legs grow strong and he sees a lot of scenery, but his progress is slow. When you travel on business and want to get to the point fast, you get a car.

A computer can help you track and analyze more markets in depth. It can take over routine tasks and free up your mind for thinking. A computer

allows you to use more indicators and spot more opportunities in the markets. Trading is an information game. A computer helps you process more information.

Computerized technical analysis is more objective than classical charting. You can argue about whether a head-and-shoulders pattern is present—but there is never an argument about an indicator's direction. When an indicator points up, it is clearly up, and when it is down, it is clearly down.

Switching from manual charting to computerized analysis is like giving up an abacus for a calculator. It may slow you down for a while, as you learn to push the keys, but the eventual increase in speed is worth the effort.

Three Steps to Computerized Analysis

There are three steps to becoming a computerized trader. First you must choose software, then a computer, and finally data for analysis. Different programs require different computers, which is why it pays to choose software first. Software tells a computer how to process data and how to display the results. Each program has a unique list of features and its own look and feel.

Draw a list of tasks you want your computer to perform for you and show it to computerized traders. Contact a traders' group such as Club 3000 to see what its members like. Many traders call Financial Trading Seminars, Inc. for our opinion on the best packages. Magazines for traders, such as *Futures* and *Technical Analysis of Stocks and Commodities* carry many ads for technical analysis software. Read those ads and software reviews, and send away for demo diskettes.

Once you narrow down your choices to two or three programs, call the companies whose software you like and ask for names of users in your area. Insist on names of real users—your best source of practical and unbiased advice. Many traders feel isolated and enjoy contact with other traders. They like to show their equipment and tell you about the quality of technical support.

Most programs for technical analysis fall into one of three groups: toolboxes, black boxes, and gray boxes. Toolboxes are for serious traders, black boxes are for people who believe in Santa Claus, and gray boxes are in between. When considering a new package, ask yourself which group it belongs to.

Toolboxes

If you want to work with wood or metal, you can go to a hardware store and buy a toolbox with a set of tools. You must learn how to use those tools to work smarter and more efficiently. A technical analysis toolbox provides a set of electronic tools for processing market data.

A toolbox draws daily and weekly charts, splits the screen into several windows, and plots prices and indicators. A good toolbox includes many popular indicators, such as moving averages, channels, MACD, MACD-Histogram, Stochastic, the Relative Strength Index, and a dozen others. It allows you to fine-tune all indicators. For example, it lets you switch from a 5-day to a 9-day Stochastic at the push of a button.

A quality package allows you to write your own indicators into the system. You may have a favorite formula that you want to follow, along with ready-made indicators. Avoid programs that limit you to canned indicators.

A good toolbox allows you to compare any two markets and analyze their spreads. If you trade options, your toolbox must include an options valuation model. Advanced packages allow you to test the profitability of trading systems.

There are good toolboxes at all price levels. At the high end, CompuTrac's™ list of indicators runs to two pages, it allows you to test profitability, and it is highly automated. Most of the charts in this book were drawn using CompuTrac. Financial Trading Seminars, Inc. maintains a list of recommended resources for computerized traders—software packages at all price levels, data services, computer configurations, and so on. This list is updated every few months and offered to traders as a public service. You can receive this timely information by contacting our company at the address that appears in the back of this book.

Black Boxes

Black box software tells you what to buy and sell and when to buy or sell it without telling you why. You put data into a black box, lights blink, gears click, and out comes a piece of paper telling you what to do. Thousands of traders pay good money for this.

Most black boxes are sold by hustlers to gullible or insecure traders. Black boxes always come with impressive track records showing profitable past performance. Every black box self-destructs because markets keep changing. Even systems with built-in optimization do not work because we

do not know what kind of optimization will be needed in the future. There is no substitute for mature judgment in trading. The only way to make money from a black box is to sell one.

Each black box is guaranteed to fail, even if sold by an honest developer. Complex human activities such as trading cannot be automated. Machines can help but not replace humans.

Trading with a black box means using a slice of someone else's intelligence, as it existed at some point in the past. Markets change, and experts change their minds, but a black box keeps churning out its buy and sell signals. Trading with a black box is like having sex using a penile implant – you may deceive your partner for a while, but you will never deceive yourself.

Gray Boxes

Like a black box, a gray box generates trading signals based on a proprietary formula. Unlike a black box, it gives you a general understanding of its formula and allows you to fine-tune its operations to some degree. The closer a gray box is to a toolbox, the better it is.

Well-known gray boxes include such programs as MESA. It is considered the best program for identifying market cycles.

Computers

Different software programs run on different machines. This is why it is better to choose your software before you buy a computer. Get the most modern machine, so that it will remain useful for years. Traders keep demanding more memory and speed – I never heard anyone complain about having too much of either. Buy a fast modem for collecting data from a database. Get a laser printer if you need to print high-quality charts.

Most programs allow you to automate studies and print them out. You push a button and leave the computer alone. When you return, there is a ream of charts with indicators piled in front of the printer. The tedious work is done, and you can go to work making trading decisions.

It pays to hire a person who already uses the package to set up your system. I often do that when I start using a new piece of software – it saves a lot of time and energy. Once you know which buttons to push, you can run most programs without knowing much about computers.

Market Data

Each trader needs to start with a historical database and update it daily. In the old days, both had to be created manually. Now historical data for any given market costs less than a dollar per month, and updates are cheap. It takes less than a minute to update a dozen markets by modem, using your regular phone line. There are many reliable databases offering a variety of stock, currency, futures, and options data.

Some traders collect their data around the clock. They use satellite dishes, FM receivers, and dedicated phone lines. Real-time data is necessary for day-trading, but not for position trading.

Position traders enter and exit positions within days or weeks. Day-traders enter and exit trades within a few hours if not minutes. You need to become a competent position trader before you can day-trade. You can compare position trading and day-trading to playing a video game at level one or level nine. You run the same mazes and dodge the same monsters, but the pace of the game is so fast that at level nine your reactions must be almost automatic. If you stop to think, you are dead. Learn to analyze the markets and trade at level one—learn to be a position trader before attempting to day-trade.

When you buy historical data, it pays to cover two bull markets and two bear markets. Starting to analyze a new market, I usually review a monthly chartbook covering 20 years of trading to see whether the market is historically high or low. I buy three to five years' worth of weekly data and one year of daily data.

When you begin using a computer, focus on six or fewer markets and add more later. For example, you may follow Treasury Bonds, Standard & Poor's 500, gold, and Japanese Yen or the German Mark. Change this list if you want to follow agricultural or industrial markets. Choose a few technical indicators, and run them daily on each market. After you learn them well, add new ones. I use a battery of 10 or 12 indicators at any given time, plus one new indicator. I watch it for several months and compare its signals to others. If it proves useful, I add it to the standard package.

Three Major Groups of Indicators

Indicators can help you identify trends and their turning points. They can provide a deeper insight into the balance of power between bulls and bears. Indicators are more objective than chart patterns.

The trouble with indicators is that they often contradict one another. Some of them work best in trending markets, others in flat markets. Some are good at catching turning points, while others are better at following trends.

Most beginners look for a single indicator—a silver bullet to kill the confusion in the markets. Others lump together many indicators and try to average their signals. Either way, a careless beginner with a computer is like a teenager with a sports car—an accident waiting to happen. A serious trader needs to know which indicators work best under different conditions. Before you use any indicator, you must understand what it measures and how it works. Only then can you have confidence in its signals.

Professionals divide indicators into three groups: trend-following indicators, oscillators, and miscellaneous. Trend-following indicators work best when markets are moving but give bad and dangerous signals when the markets are flat. Oscillators catch turning points in flat markets but give premature and dangerous signals when the markets begin to trend. Miscellaneous indicators provide special insights into mass psychology. The secret of successful trading is to combine several indicators from different groups so that their negative features cancel each other out while their positive features remain undisturbed. This is the aim of the Triple Screen trading system (see Section 43).

Trend-following indicators include moving averages, MACD (moving average convergence-divergence), MACD-Histogram, the Directional System, On-Balance Volume, Accumulation/Distribution, and others. Trend-following indicators are coincident or lagging indicators—they turn after trends reverse.

Oscillators help identify turning points. They include Stochastic, Rate of Change, Smoothed Rate of Change, Momentum, the Relative Strength Index, Elder-ray, the Force Index, Williams %R, the Commodity Channel Index, and others. Oscillators are leading or coincident indicators and often turn ahead of prices.

Miscellaneous indicators provide insights into the intensity of bullish or bearish market opinion. They include the New High–New Low Index, the Put-Call Ratio, Bullish Consensus, Commitments of Traders, the Advance/Decline Index, the Traders' Index, and so on. They can be leading or coincident indicators.

25. MOVING AVERAGES

Wall Street old-timers claim that moving averages were brought to the financial markets by antiaircraft gunners. They used moving averages to site guns

on enemy planes during World War II and applied this method to prices. The two early experts on moving averages were Richard Donchian and J. M. Hurst—neither apparently a gunner. Donchian was a Merrill Lynch employee who developed trading methods based on moving average crossovers. Hurst was an engineer who applied moving averages to stocks in his now-classic book, *The Profit Magic of Stock Transaction Timing.*

A moving average (MA) shows the average value of data in its time window. A 5-day MA shows the average price for the past 5 days, a 20-day MA shows the average price for the past 20 days, and so on. When you connect each day's MA values, you create a moving average line.

$$\text{Simple MA} = \frac{P_1 + P_2 + \ldots + P_N}{N}$$

where P is the price being averaged
N is the number of days in the moving average (selected by trader)

The value of MA depends on two factors: values that are being averaged and the width of the MA time window. Suppose you want to calculate a 3-day simple moving average of a stock. If it closes at 19, 21, and 20 on three consecutive days, then a 3-day simple MA of closing prices is 20 (19 + 21 + 20, divided by 3). Suppose that on the fourth day the stock closes at 22. It makes its 3-day MA rise to 21—the average of the last three days (21 + 20 + 22), divided by 3.

There are three main types of moving averages: simple, exponential, and weighted. Most traders use simple MAs because they are easy to calculate, and Donchian and Hurst used them in precomputer days. Simple MAs, however, have a fatal flaw—they change twice in response to each price.

Twice as Much Bark

A simple MA changes twice in response to each piece of data. First, it changes when a new piece of data is added to the moving average. That is good—we want our MA to reflect changes in prices. The bad thing is that MA changes again when an old price is dropped off at the end of the moving average window. When a high price is dropped, a simple MA ticks down. When a low price is dropped, a simple MA rises. Those changes have nothing to do with the current reality of the market.

Imagine that a stock hovers between 80 and 90, and its 10-day simple MA stands at 85 but includes one day when the stock reached 105. When that high number is dropped at the end of the 10-day window, the MA dives, as if

in a downtrend. That meaningless dive has nothing to do with the current reality of the market.

When an old piece of data gets dropped off, a simple moving average jumps. A simple MA is like a guard dog that barks twice—once when someone approaches the house, and once again when someone walks away from it. You do not know when to believe that dog. Traders use simple MAs out of inertia. A modern computerized trader is better off using exponential moving averages.

Market Psychology

Each price is a snapshot of the current mass consensus of value (see Section 12). A single price does not tell you whether the crowd is bullish or bearish—just as a single photo does not tell you whether a person is an optimist or a pessimist. If, on the other hand, someone brings ten photos of a person to a lab and gets a composite picture, it will reveal that person's typical features. If you update a composite photo each day, you can monitor trends in that person's mood.

A moving average is a composite photograph of the market—it combines prices for several days. The market consists of huge crowds, and a moving average identifies the direction of mass movement.

The most important message of a moving average is the direction of its slope. When it rises, it shows that the crowd is becoming more optimistic—bullish. When it falls, it shows that the crowd is becoming more pessimistic—bearish. When the crowd is more bullish than before, prices rise above a moving average. When the crowd is more bearish than before, prices fall below a moving average.

Exponential Moving Averages

An exponential moving average (EMA) is a better trend-following tool than a simple MA. It gives greater weight to the latest data and responds to changes faster than a simple MA. At the same time, an EMA does not jump in response to old data. This guard dog has better ears, and it barks only when someone approaches the house.

$$\text{EMA} = P_{\text{tod}} \cdot K + \text{EMA}_{\text{yest}} \cdot (1 - K)$$

$$\text{where } K = \frac{2}{N + 1}$$

N = the number of days in the EMA (chosen by the trader).

P_{tod} = today's price.

EMA_{yest} = the EMA of yesterday.

Technical analysis software allows you to select the EMA length and calculate it at a push of a key. To do it by hand, follow these steps:

1. Choose the EMA length (see below). Let us say, we want a 10-day EMA.
2. Calculate the coefficient K for that length (see above). For example, if you want a 10-day EMA, K equals 2 divided by 10 + 1, or 0.18.
3. Calculate a simple MA for the first 10 days—add closing prices and divide the sum by 10.
4. On the 11th day, multiply the closing price by K, multiply the previous day's MA by $(1 - K)$, and add the two. The result is the 10-day EMA.
5. Keep repeating step 4 on each subsequent day to obtain the latest EMA (see worksheet, Figure 25-1).

An EMA has two major advantages over a simple MA. First, it assigns greater weight to the last trading day. The latest mood of the crowd is more important. In a 10-day EMA, the last closing price is responsible for 18 percent of EMA value, while in a simple MA all days are equal. Second, EMA does not drop old data the way a simple MA does. Old data slowly fades away, like a mood of the past lingering in a composite photo.

Choosing the Length of a Moving Average

A relatively short EMA is more sensitive to price changes—it allows you to catch new trends sooner. It also changes its direction more often and produces more whipsaws. A whipsaw is a rapid reversal of a trading signal. A relatively long EMA leads to fewer whipsaws but misses turning points by a wider margin.

Gold

Day	Close	10-EMA
1	447.3	
2	456.8	
3	451.0	
4	452.5	
5	453.4	
6	455.5	
7	456.0	
8	454.7	
9	453.5	
10	456.5	453.7
11	459.5	454.8
12	465.2	456.6
13	460.8	457.4
14	460.8	458.0

Figure 25–1. Ten-Day EMA Worksheet

Begin by calculating a simple moving average. The first value in column 3 is a simple MA. Then calculate an exponential moving average on each subsequent day, according to the formula provided in the chapter.

When computers first became available, traders crunched numbers to find the "best" moving averages for different markets. They found which MAs worked in the past—but it did not help them trade because markets kept changing. Our brokers do not let us trade the past.

It pays to tie EMA length to a cycle if you can find it. A moving average should be half the length of the dominant market cycle (see Section 36). If you find a 22-day cycle, use an 11-day moving average. If the cycle is 34 days long, then use a 17-day moving average. Trouble is, cycles keep changing their length and disappearing. Some traders use software such as MESA to look for valid cycles, but MESA shows that noise is greater than cycle amplitude most of the time.

Finally, traders can fall back on a simple rule of thumb: The longer the

trend you are trying to catch, the longer the moving average you need. You need a bigger fishing rod to catch a bigger fish. A 200-day moving average works for long-term stock investors who want to ride major trends. Most traders can use an EMA between 10 and 20 days. A moving average should not be shorter than 8 days to avoid defeating its purpose as a trend-following tool. I have been using a 13-day exponential moving average for most of my trading in the past several years.

Trading Rules

A successful trader does not forecast the future—he monitors the market and manages his trading position (see Section 17). Moving averages help us to trade in the direction of the trend. The single most important message of a moving average is the direction of its slope. It shows the direction of the market's inertia. When an EMA rises, it is best to trade the market from the long side, and when it falls, it pays to trade from the short side (Figure 25-2).

1. When an EMA rises, trade that market from the long side. Buy when prices dip near or slightly below the moving average. Once you are long, place a protective stop below the latest minor low and move the stop to the break-even point as soon as prices close above their EMA.
2. When the EMA falls, trade that market from the short side. Sell short when prices rally toward or slightly above the EMA, and place a protective stop above the latest minor high. Lower that stop to the break-even point as soon as prices close below their EMA.
3. When the EMA goes flat and only wiggles a little, it identifies an aimless, trendless market. Do not trade using a trend-following method.

Mechanical Systems

The old mechanical trading methods using moving averages usually had four steps: (1) Buy when the MA rises and prices close above it; (2) sell when prices close below the MA; (3) sell short when the MA declines and prices close below it; (4) cover shorts when prices close above the MA. This mechanical method works in trending markets but leads to whipsaws when markets go flat.

Trying to filter out whipsaws with mechanical rules is self-defeating—fil-

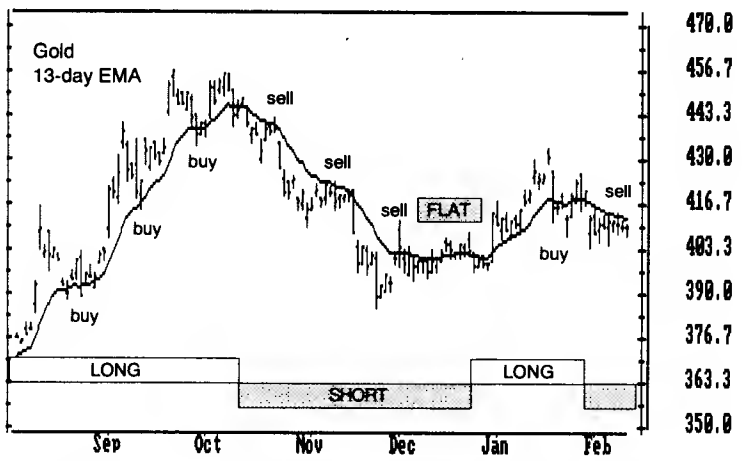


Figure 25-2 Thirteen-Day Exponential Moving Average

When the EMA rises, it shows that the trend is up and the market should be traded from the long side. The best time to buy is when prices return to their EMA–not when they are high above it. Those trades offer a better risk/reward ratio.

When the EMA declines, it shows that the trend is down and the market should be traded from the short side. It is best to sell when prices rally back to their EMA. When the EMA goes flat, as it did in December, it tells you that the market has stopped trending. Stop using a trend-following method but continue to track this indicator, waiting for it to enter a trend.

ters reduce profits as much as losses. An example of a filter is a rule that requires that prices close on the other side of MA not once, but twice, or that they penetrate MA by a certain margin. Mechanical filters reduce losses, but they also diminish the best feature of a moving average—its ability to lock onto a trend early.

The favorite approach of Donchian, one of the originators of trading with moving averages, was to use crossovers of 4-, 9-, and 18-day MAs. Trading signals were given when all three MAs turned in the same direction. His

method, like other mechanical trading methods, only worked in strongly trending markets.

A trader must accept that an EMA, like any other trading tool, has good and bad sides. Moving averages help you identify and follow trends, but they lead to whipsaws in trading ranges. We will look for an answer to this dilemma in Chapter 9 on the Triple Screen trading system.

More on Moving Averages

Moving averages serve as **support and resistance** zones. A rising MA tends to serve as a floor below prices, and a falling MA serves as a ceiling above them. That's why it pays to buy near a rising MA, and sell short near a falling MA.

Moving averages can be applied to **indicators** as well as prices. Some traders use a 5-day **moving average of volume**. When volume falls below its 5-day MA, it shows reduced public interest in the minor trend, which is likely to reverse. When volume overshoots its MA, it shows strong public interest and confirms the price trend.

The proper way to plot a simple moving average is to **lag** it behind prices by half its length. For example, a 10-day simple MA properly belongs in the middle of a 10-day period, and it should be plotted underneath the 5th or 6th day. An exponential moving average is more heavily weighted toward the latest data, and a 10-day EMA should be plotted underneath the 7th or 8th day. Most software packages allow you to lag a moving average.

Moving averages can be based not only on closing prices but also on the **mean between the high and the low**. MAs of closing prices are used for daily analysis, but day-traders prefer to apply MAs to median prices.

An exponential moving average assigns greater weight to the latest day of trading, but a **weighted moving average** (WMA) allows you to assign any weight to any day, depending on what you deem important. WMAs are so complicated that traders are better off using EMAs.

26. MOVING AVERAGE CONVERGENCE-DIVERGENCE (MACD) AND MACD-HISTOGRAM

Moving averages identify trends by filtering out daily price ripples. A more advanced indicator was constructed by Gerald Appel, an analyst and money

manager in New York. Moving Average Convergence-Divergence, or MACD for short, consists not of one, but three exponential moving averages. It appears on the charts as two lines whose crossovers give trading signals.

How to Create MACD

The original MACD indicator consists of two lines: a solid line (called the MACD line) and a dashed line (called the Signal line). The MACD line is made up of two exponential moving averages (EMAs). It responds to changes in prices relatively quickly. The Signal line is made up of the MACD line smoothed with another EMA. It responds to changes in prices more slowly.

Buy and sell signals are given when the fast MACD line crosses above or below the slow Signal line. The MACD indicator is included in most programs for technical analysis. Few traders calculate it by hand—a computer does the job faster and more accurately.

To create MACD:

1. Calculate a 12-day EMA of closing prices.
2. Calculate a 26-day EMA of closing prices.
3. Subtract the 26-day EMA from the 12-day EMA, and plot their difference as a solid line. This is the fast MACD line.
4. Calculate a 9-day EMA of the fast line, and plot the result as a dashed line. This is the slow Signal line (see the worksheet, Figure 26-1).

Market Psychology

Each price reflects the consensus of value among the mass of market participants at the moment of the trade. A moving average represents an average consensus of value in a selected period—a composite photo of mass consensus. A long moving average tracks long-term consensus, and a short moving average tracks short-term consensus.

Crossovers of the MACD and Signal lines identify shifts in the balance of power of bulls and bears. The fast MACD line reflects mass consensus over a shorter period. The slow Signal line reflects mass consensus over a longer period. When the fast MACD line rises above the slow Signal line, it shows

Crude Oil

DAY	CLOSE	12-EMA	26-EMA	MACD	SIGNAL	MACD-HIST
1	20.70	20.39	20.46	-0.07	-0.16	0.09
2	20.55	20.41	20.47	-0.06	-0.14	0.08
3	20.72	20.46	20.49	-0.03	-0.12	0.09
4	21.03	20.55	20.53	0.02	-0.09	0.11
5	21.10	20.63	20.57	0.06	-0.06	0.12
6	21.29	20.73	20.62	0.11	-0.02	0.13
7	21.09	20.79	20.66	0.13	0.01	0.12
8	21.48	20.90	20.72	0.18	0.04	0.14
9	21.23	20.95	20.76	0.19	0.07	0.12

Figure 26–1. MACD and MACD-Histogram Worksheet

To obtain MACD lines and an MACD-Histogram take these steps:

1. Calculate the 12-day and 26-day exponential moving averages of closing prices.
2. Subtract the 26-day EMA from the 12-day EMA to obtain the fast MACD line.
3. Calculate a 9-day EMA of the fast MACD line to obtain the slow Signal line. Plot both lines to obtain the classic MACD indicator.
4. Subtract the Signal line from the MACD line to obtain an MACD-Histogram.

that bulls dominate the market, and it is better to trade from the long side. When the fast line falls below the slow line, it shows that bears dominate the market and it pays to trade from the short side.

Trading Rules

Crossovers between the MACD and Signal lines identify changing market tides. Trading in the direction of a crossover means going with the flow of the market. This system generates fewer trades and whipsaws than a mechanical system based on a single moving average.

1. When the fast MACD line crosses above the slow Signal line, it gives a buy signal. Go long, and place a protective stop below the latest minor low.

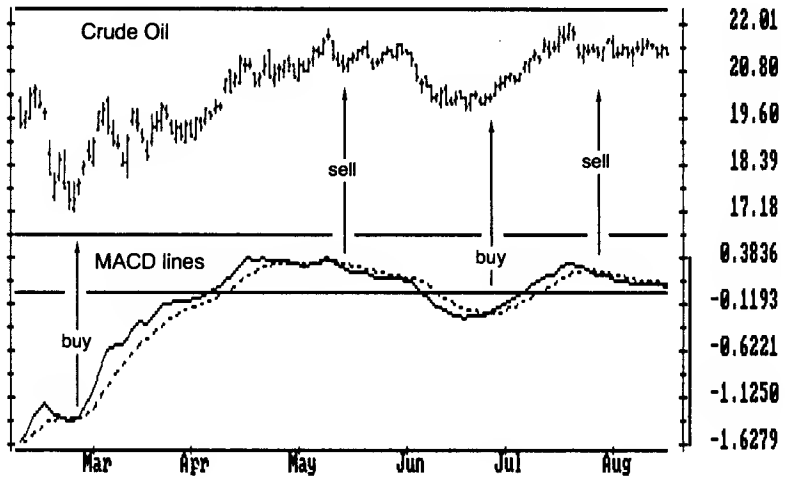


Figure 26–2. MACD Lines

When the fast MACD line crosses above the slow Signal line, it gives a buy signal. Sell signals are given when the fast line crosses below the slow line. These rules help catch all the major trends and generate fewer whipsaws than crossovers of prices and a single moving average.

2. When the fast line crosses below the slow line, it gives a sell signal. Go short, and place a protective stop above the latest minor high (Figure 26-2).

More on MACD

Many traders try to **optimize** MACD by using other moving averages than the standard 12-, 26-, and 9-bar EMAs; 5–34–7 is another popular choice. Some traders try to link MACD to market **cycles**. The trouble is cycles are not present in the markets most of the time (see Section 36). If you use cycles, the first EMA should be one quarter the length of the dominant cycle and the second EMA half the cycle length. The third EMA is a smoothing device whose length does not have to be tied to a cycle. Beware of optimiz-

ing MACD too often. If you fiddle with MACD long enough, you can make it give you any signal you want using the same data.

A **"quick-and-dirty"** way to plot MACD is used by traders whose software does not include this indicator. Some packages allow you to draw only two EMAs. In that case, you can use crossovers between two EMAs, such as 11-day and 26-day EMAs as a proxy for MACD and Signal lines.

MACD-Histogram

MACD-Histogram offers a deeper insight into the balance of power between bulls and bears than the original MACD. It shows not only whether bulls or bears are in control but also whether they are growing stronger or weaker. It is one of the best tools available to a market technician.

MACD-Histogram = MACD line – Signal line

MACD-Histogram measures the difference between the MACD line and the Signal line (see worksheet, Figure 26-1). It plots that difference as a histogram – a series of vertical bars. That distance may appear puny, but a computer rescales it to fill the screen.

If the fast line is above the slow line, MACD-Histogram is positive and plotted above the zero line. If the fast line is below the slow line, MACD-Histogram is negative and plotted below the zero line. When the two lines touch, MACD-Histogram equals zero.

When the spread between the MACD and Signal lines increases, MACD-Histogram becomes taller or deeper, depending on its direction. When the two lines draw closer, MACD-Histogram becomes shorter.

The slope of MACD-Histogram is defined by the relationship between any two neighboring bars. If the last bar is higher (like the height of letters m–M), the slope of MACD-Histogram is up. If the last bar is lower (like the depth of letters P–p), then the slope of MACD-Histogram is down.

Market Psychology

MACD-Histogram shows the difference between long-term and short-term consensus of value. The fast MACD line reflects market consensus over a shorter period. The slow Signal line reflects market consensus over a longer period. MACD-Histogram tracks the difference between these two lines.

The slope of MACD-Histogram identifies the dominant market group. A rising MACD-Histogram shows that bulls are becoming stronger. A falling MACD-Histogram shows that bears are becoming stronger.

When the fast MACD line rallies faster than the slow Signal line, MACD-Histogram rises. It shows that bulls are becoming stronger than they have been—it is a good time to trade from the long side. When the fast MACD line drops faster than the slow line, MACD-Histogram falls. It shows that bears are becoming stronger—it is a good time to trade from the short side.

When the slope of MACD-Histogram moves in the same direction as prices, the trend is safe. When the slope of MACD-Histogram moves in a direction opposite to that of prices, the health of the trend is questioned. It is best to trade in the direction of the slope of MACD-Histogram because it shows whether bulls or bears dominate the market.

The slope of MACD-Histogram is more important than its position above or below the centerline. The best sell signals are given when MACD-Histogram is above its centerline but its slope turns down, showing that bulls have become exhausted. The best buy signals occur when MACD-Histogram is below its centerline but its slope turns up, showing that bears have become exhausted.

Trading Rules

MACD-Histogram gives two types of trading signals. One is common and occurs at every price bar. The other is rare and occurs only a few times a year in any market—but it is extremely strong.

The common signal is given by the slope of MACD-Histogram (Figure 26-3). When the current bar is higher than the preceding bar, the slope is up. It shows that bulls are in control and it is time to buy. When the current bar is lower than the preceding bar, the slope is down. It shows that bears are in control and it is time to be short. When prices go one way but MACD-Histogram moves the other way, it shows that the dominant crowd is losing its enthusiasm and the trend is weaker than it appears.

1. Buy when MACD-Histogram stops falling and ticks up. Place a protective stop below the latest minor low.
2. Sell short when MACD-Histogram stops rising and ticks down. Place a protective stop above the latest minor high.

MACD-Histogram ticks up and down on the daily charts so often that is

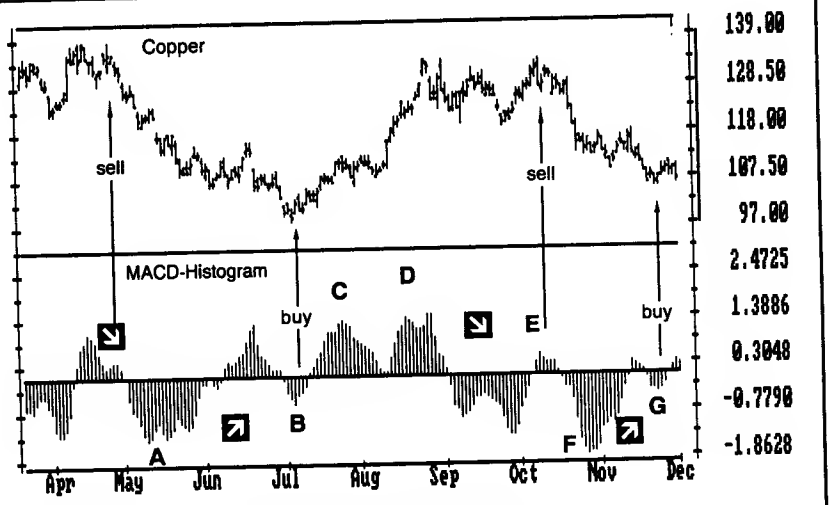


Figure 26–3. MACD-Histogram Divergences

MACD-Histogram confirms trends when it reaches new highs or lows together with prices. The new lows in MACD-Histogram at points A and F confirm downtrends. New lows in the indicator tell traders that the downtrend is likely to retest or exceed bottoms A and F. New highs C and D in MACD-Histogram confirm uptrends. They show that the uptrend is likely to retest or exceed peaks C and D.

Divergences between MACD-Histogram and prices identify major turning points. These signals rarely occur, but when they do, they often let you catch major reversals and the beginnings of new trends. The bullish divergence A–B flags a major buying opportunity. Prices are at a new low, but the indicator is tracing a higher bottom. It shows that bears are exhausted and bulls are ready to gain the upper hand.

The bearish divergence D–E identifies a major selling opportunity. At the right edge of the chart, there is a bullish divergence, F–G. The best time to buy is when MACD-Histogram ticks up from its second bottom, G. Once you go long, place a protective stop below the price bottom G. Move the stop up as the trend progresses.

not practical to buy and sell every time it turns. The changes of slope of MACD-Histograms are much more meaningful on the weekly charts, which is why it is included in the Triple Screen trading system (see Section 43).

When to Expect a New Peak or Valley

MACD-Histogram works like headlights on a car—it gives traders a glimpse of the road ahead. New highs and lows in this indicator are usually followed by new high or low prices.

A record peak for the past three months in daily MACD-Histogram shows that bulls are very strong and prices are likely to rise even higher. A record new low for MACD-Histogram for the past three months shows that lower prices are likely ahead.

When MACD-Histogram reaches a new high during a rally, the uptrend is healthy and you can expect the next rally to retest or exceed its previous peak. If MACD-Histogram falls to a new low during a downtrend, it shows that bears are strong and prices are likely to retest or exceed their latest low.

The Strongest Signal in Technical Analysis

Divergences between MACD-Histogram and prices occur only a few times a year in any given market, but they give some of the most powerful messages in technical analysis. These divergences identify major turning points and give "extra-strength" buy or sell signals. They do not occur at every important top and bottom, but when you see one, you know that a major reversal is probably at hand.

When prices rally to a new high, but MACD-Histogram traces a lower top, it creates a bearish divergence (Figure 26-3). A lower top in MACD-Histogram shows that bulls are internally weak even though prices are higher. When bulls are running out of steam, bears are ready to grab control. Bearish divergences between MACD-Histogram and prices identify weakness at market tops. They give sell signals when most traders feel excited about a breakout to a new high!

3. Sell short when MACD-Histogram ticks down from its second, lower top, while prices are at a new high. Place a protective stop above the latest high.

As long as prices keep falling to new lows and MACD-Histogram keeps going lower, it confirms the downtrend. If prices fall to a new low but MACD-Histogram traces a more shallow low, it creates a bullish divergence. It shows that prices are falling out of inertia, bears are weaker than they seem, and bulls are ready to gain control. Bullish divergences between

MACD-Histogram and prices identify strength at market bottoms. They give buy signals when most traders feel fearful about a breakdown to a new low!

4. Buy when MACD-Histogram ticks up from its second, more shallow bottom while prices are at a new low. Place a protective stop below the latest low.

If a bullish divergence between MACD-Histogram and price is aborted and prices fall to a new low, you will be stopped out. Continue to watch MACD-Histogram. If it traces a more shallow third bottom while prices decline to a new low, you are dealing with a "triple bullish divergence"—an especially strong buy signal. Buy again as soon as MACD-Histogram ticks up from its shallow third bottom. The reverse applies to shorting triple bearish divergences.

More on MACD-Histogram

MACD-Histogram works in any timeframe: weekly, daily, and intraday. The signals of weekly MACD-Histogram lead to greater price moves than the daily or intraday indicators. This principle applies to all indicators—signals in longer timeframes lead to greater price moves.

When you use MACD and MACD-Histogram on the weekly charts, you do not have to wait until Friday to get your signals. A major trend can change in the middle of the week—the market does not watch the calendar. Because of this, weekly studies have to be performed each day.

27. THE DIRECTIONAL SYSTEM

The Directional system is a trend-following method. It was developed by J. Welles Wilder, Jr., in the mid-1970s and modified by several analysts. The Directional system identifies trends and shows when a trend is moving fast enough to make it worth following. It helps traders take chunks of profit out of the middle of important trends.

How to Construct the Directional System

Directional Movement is defined as the portion of today's range that is outside of the previous day's range. The Directional system checks whether

Japanese Yen

Date	High	Low	Close	$+DI_{13}$	$-DI_{13}$	DX	ADX
7/1	72.24	71.87	71.92	30	20	20	20
7/2	71.83	71.63	71.69	29	23	12	19
7/3	71.65	71.33	71.36	27	27	0	18
7/5	72.10	71.83	72.06	31	23	15	18
7/8	71.94	71.78	71.90	30	23	13	18
7/9	72.02	71.77	71.79	30	22	15	18
7/10	71.95	71.87	71.90	29	21	16	18
7/11	72.13	71.82	71.85	30	20	20	18
7/12	73.20	71.94	73.11	41	16	44	20
7/15	72.94	72.65	72.80	38	15	43	22
7/16	72.75	72.55	72.58	36	16	38	23
7/17	72.91	72.62	72.71	37	15	42	24
7/18	73.07	72.29	72.42	32	18	28	24
7/19	73.06	72.69	73.06	29	16	29	24
7/22	72.70	72.22	72.36	26	21	11	23
7/23	72.76	72.62	72.69	25	20	11	22
7/24	72.96	72.38	72.48	23	22	2	20
7/25	72.42	71.64	71.76	20	30	20	20
7/26	72.50	71.96	72.37	19	27	17	20
7/29	72.34	72.08	72.25	18	26	18	20
7/30	72.47	72.18	72.26	19	25	14	20
7/31	72.59	72.31	72.51	20	23	7	19
8/1	72.59	72.30	72.41	19	22	7	18
8/2	72.92	72.28	72.58	23	20	7	17
8/5	72.95	72.56	72.80	22	19	7	16
8/6	73.57	72.94	73.50	28	17	24	17
8/7	73.29	73.07	73.21	27	16	26	18
8/8	73.15	72.84	73.06	25	18	16	18
8/9	73.18	72.67	72.81	23	20	7	17
8/12	72.92	72.72	72.88	22	19	7	16

Figure 27–1. Directional System Worksheet

$+DI_{13}$ and $-DI_{13}$ are based on positive and negative directional movements and the true ranges of the past 13 days. DX is derived from $+DI_{13}$ and $-DI_{13}$, and ADX is made by smoothing DX. See formulas in the chapter.

today's range extends above or below the previous day's range and averages that data over a period of time. These complex calculations (see worksheet, Figure 27-1) are best performed on a computer. The Directional system is included in most software programs for technical analysis.

1. **Identify "Directional Movement" (DM)** by comparing today's high-to-low range with yesterday's high-to-low range. Directional Movement is the largest part of today's range outside of yesterday's range. There are four types of DM (Figure 27-2). DM is always a positive number (+DM and –DM refer simply to movement above or below yesterday's range).

2. **Identify the "True Range" (TR)** of the market you analyze. It is always a positive number, the largest of three:
   A. The distance from today's high to today's low
   B. The distance from today's high to yesterday's close
   C. The distance from today's low to yesterday's close

3. **Calculate daily Directional Indicators (+DI and –DI)**. They allow you to compare different markets by expressing their directional movement as a percentage of each market's true range. Each DI is a positive number: +DI equals zero on a day that has no directional movement up; –DI equals zero on a day that has no directional movement down.

$$+DI = \frac{+DM}{TR} \qquad -DI = \frac{-DM}{TR}$$

4. **Calculate smoothed Directional Lines ($+DI_{13}$ and $-DI_{13}$)**. Smooth +DI and –DI are created with moving averages. Most software packages allow you to pick any period for smoothing, such as a 13-day moving average. You get two indicator lines: smoothed Positive and Negative Directional lines, $+DI_{13}$ and $-DI_{13}$. Both numbers are positive. They are usually plotted in different colors, or as a solid and a dashed line.
   The relationship between Positive and Negative lines identifies trends. When $+DI_{13}$ is on top, it shows that the trend is up, and when $-DI_{13}$ is on top, it shows that the trend is down. The crossovers of $+DI_{13}$ and $-DI_{13}$ give buy and sell signals.

5. **Calculate the Average Directional Indicator (ADX)**. This unique component of Directional system shows when a trend is worth following. ADX measures the spread between Directional Lines $+DI_{13}$ and $-DI_{13}$. It is calculated in two steps:

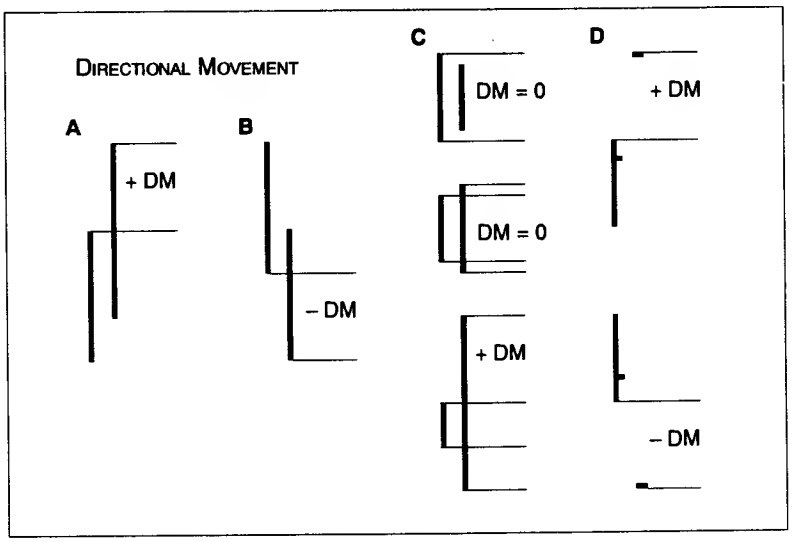


Figure 27–2. Directional Movement

Directional Movement is the largest part of today's range that is outside of yesterday's range.

A. If today's range extends above yesterday's range, Directional Movement is positive (+DM).
B. If today's range extends below yesterday's range, Directional Movement is negative (–DM).
C. If today's range is inside of yesterday's range or extends above and below it by equal amounts, there is no Directional Movement (DM = 0). If today's range extends both above and below yesterday's range, DM is positive or negative, depending on which part of the "outside range" is larger.
D. On a limit up day, +DM equals the distance from today's close to yesterday's high. On a limit down day, –DM equals the distance from today's close to yesterday's low.

A. Calculate the daily Directional Indicator DX:

$$DX = \frac{+DI_{13} - -DI_{13}}{+DI_{13} + -DI_{13}} \cdot 100$$

For example, $+DI_{13} = 34$; $-DI_{13} = 18$. Then,

$$DX = \frac{34 - 18}{34 + 18} \cdot 100 = \frac{16}{52} \cdot 100 = 30.77, \text{ rounded off} = 31$$

B. Calculate the Average Directional Indicator ADX by smoothing DX with a moving average, such as a 13-day EMA.

When a trend proceeds in a healthy manner, the spread between two smoothed Directional lines increases and ADX rises. ADX declines when a trend reverses or when a market enters a trading range. It pays to use a trend-following method when ADX rises and not when ADX declines.

Crowd Behavior

The Directional system tracks changes in mass bullishness and bearishness by measuring the capacity of bulls and bears to move prices outside of the previous day's range. If today's high is above yesterday's high, it shows that the market crowd is becoming more bullish. If today's low is below yesterday's low, it shows that the market crowd is becoming more bearish.

The relative position of Directional lines identifies trends. When the Positive Directional line is above the Negative Directional line, it shows that bullish traders dominate the market. When the Negative Directional line rises above the Positive Directional line, it shows that bearish traders are stronger. It pays to trade in the direction of the upper Directional line.

The Average Directional Indicator ADX rises when the spread between Directional lines increases. This shows that market leaders are becoming stronger, losers are getting weaker, and the trend is likely to continue. When the ADX rises, it pays to trade in the direction of the upper Directional line, using a trend-following method.

ADX declines when the spread between $+DI_{13}$ and $-DI_{13}$ narrows down. This shows that the dominant market group is losing its strength, while the underdogs are gaining. Then the market is in turmoil, and it is better not to use trend-following methods.

Trading Rules

1. Trade only from the long side when $+DI_{13}$ is above $-DI_{13}$. Trade only from the short side when $-DI_{13}$ is above $+DI_{13}$. The best time to be long is when both $+DI_{13}$ and ADX are above $-DI_{13}$ and ADX rises. This shows that the uptrend is getting stronger. Go long and place a

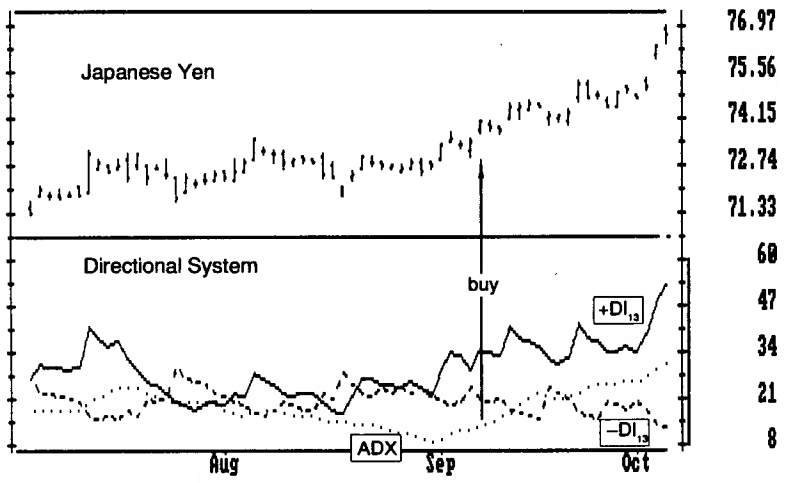


Figure 27–3. Signals of the Directional System

Directional lines identify trends. When +DI is on top, the trend is up, and it pays to trade the market from the long side. When –DI is on top, it shows that the trend is down and it pays to trade the market from the short side. The best time to use a trend-following method is when ADX is rising and is above the lower Directional line. Those are two signs of dynamic trends.

The Directional system gives its best signals after ADX spends several weeks below both Directional lines. That happens in quiet, dull markets. Once ADX "wakes up" and rises by four steps (for example, from 10 to 14), it gives a strong signal to trade in the direction of the upper Directional line. It often flashes this signal at the beginning of major market moves. On this chart, ADX rallied from 9 to 13 in September, just prior to a dynamic rally in the Japanese Yen. Since the +DI was on top when the signal occurred, it signalled to go long.

protective stop below the latest minor low. The best time to be short is when $-DI_{13}$ and ADX are above $+DI_{13}$ and ADX rises. This shows that bears are becoming stronger. Go short and place a protective stop above the latest minor high.

2. When ADX declines, it shows that the market is becoming less direc-

tional. There are usually many whipsaws, just as there are turbulences in the water during the change of tide. When ADX points down, it is better not to use a trend-following method.

3. When ADX falls below both Directional lines, it identifies a flat, sleepy market. Do not use a trend-following system but start getting ready, because major trends emerge from such lulls.

4. The single best signal of the Directional system comes after ADX falls below both Directional lines. The longer it stays there, the stronger the base for the next move. When ADX rallies from below both Directional lines, it shows that the market is waking up from a lull. When ADX rises by four steps (i.e., from 9 to 13) from its lowest point below both Directional lines, it "rings a bell" on a new trend. It shows that a new bull market or bear market is being born (Figure 27-3). Buy if $+DI_{13}$ is on top and place a stop below the latest minor low. Sell short if $-DI_{13}$ is on top and place a stop above the latest minor high.
For example, if ADX rises from 8 to 12 while both lines are above 12 and $+DI_{13}$ is on top, it indicates that a new uptrend is beginning. If ADX rises from 9 to 13 while both lines are above 13 and $-DI_{13}$ is on top, it shows that a new downtrend is starting.

The Directional System is unique in telling you when a major new trend is likely to begin. It rings a bell once or twice a year in any given market. It signals when a new baby bull or baby bear is being born. Monetary risk is usually low at that time, due to low volatility while the trend is still young.

5. When ADX rallies above both Directional lines, it identifies an overheated market. When ADX turns down from above both Directional lines, it shows that the major trend has stumbled. It is a good time to take profits. If you trade multiple contracts, you definitely want to take partial profits.

Market indicators give hard signals and soft signals. For example, a violation of a price low or a change in direction of a moving average are hard signals. A downturn of ADX is a soft signal. Once you see ADX turn down, you ought to be very, very careful about adding to positions. You should start taking profits, reducing positions, and looking to get out of your position rather than adding to it.

28. MOMENTUM, RATE OF CHANGE, AND SMOOTHED RATE OF CHANGE

When greed or fear grips a mass of traders, the crowd surges. Oscillators measure the speed of that surge and track its momentum.

Technical indicators are divided into three main groups. Trend-following indicators help identify trends. Oscillators help find turning points. Miscellaneous indicators, such as the New High–New Low Index, track general changes in mass psychology.

Oscillators identify the emotional extremes of market crowds. They allow you to find unsustainable levels of optimism and pessimism. Professionals tend to fade those extremes. They bet against them, for a return to normalcy. When the market rises and the crowd gets up on its hind legs and roars from greed, professionals sell short. They buy when the market falls and the crowd howls in fear. Oscillators help them to time those trades.

Overbought and Oversold

Martin Pring compares trend-following indicators and oscillators to the footprints of a man walking his dog on a leash. The man leaves a fairly straight trail—like a trend-following indicator. The dog's trail swings right and left as far as the leash allows—like an oscillator. When the dog reaches the end of its leash, it is likely to turn and run the other way.

You can follow the trail of a man to find the trend of the pair. When the dog deviates from that trail by the length of its leash, it usually turns around. Usually, but not always. If a dog sees a cat or a rabbit, it may become excited enough to pull its owner off his trail. Traders need to use judgment when using oscillator signals.

An oscillator becomes overbought when it reaches a high level associated with tops in the past. Overbought means too high, ready to turn down. An oscillator becomes oversold when it reaches a low level associated with bottoms in the past. Oversold means too low, ready to turn up.

Overbought and oversold levels are marked by horizontal reference lines on the charts. The proper way to draw those lines is to place them so that an oscillator spends only about 5 percent of its time beyond each line. Place overbought and oversold lines so that they cut across only the highest peaks and the lowest valleys of an oscillator for the past six months. Readjust these lines once every three months.

When an oscillator rises or falls beyond its reference line, it helps a trader to pick a top or a bottom. Oscillators work spectacularly well in trading ranges, but they give premature and dangerous trading signals when a new trend erupts from a range. When a strong trend begins, oscillators start acting like a dog that pulls its owner off his path.

An oscillator can stay overbought for weeks at a time when a new, strong uptrend begins, giving premature sell signals. It can stay oversold for weeks in a steep downtrend, giving premature buy signals. Knowing when to use oscillators and when to rely on trend-following indicators is a hallmark of a mature analyst (see Section 43).

Types of Divergences

Oscillators, as well as other indicators, give their best trading signals when they diverge from prices. Bullish divergences occur when prices fall to a new low while an oscillator refuses to decline to a new low. They show that bears are losing power, prices are falling out of inertia, and bulls are ready to seize control. Bullish divergences often mark the ends of downtrends.

Bearish divergences occur in uptrends—they identify market tops. They emerge when prices rally to a new high while an oscillator refuses to rise to a new peak. A bearish divergence shows that bulls are running out of steam, prices are rising out of inertia, and bears are ready to take control.

There are three classes of bullish and bearish divergences (Figure 28-1). Class A divergences identify important turning points—the best trading opportunities. Class B divergences are less strong, and class C divergences are least important. Valid divergences are clearly visible—they seem to jump from the charts. If you need a ruler to tell whether there is a divergence, assume there is none.

Class A bearish divergences occur when prices reach a new high but an oscillator reaches a lower high than it did on a previous rally. Class A bearish divergences usually lead to sharp breaks. Class A bullish divergences occur when prices reach a new low but an oscillator traces a higher bottom than during its previous decline. They often precede sharp rallies.

Class B bearish divergences occur when prices make a double top but an oscillator traces a lower second top. Class B bullish divergences occur when prices make a double bottom but an oscillator traces a higher second bottom.

Class C bearish divergences occur when prices rise to a new high but an indicator stops at the same level it reached during the previous rally. It shows