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BLOOMBERG VISUAL GUIDE TO

# CANDLESTICK CHARTING

MICHAEL C. THOMSETT

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**Bloomberg Visual Guide to**

# Candlestick Charting

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# **Bloomberg Visual Guide to** **Candlestick Charting**

**Michael C. Thomsett**

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# Introduction: The Value of Candlestick Charting

Today, a majority of chartists and technicians are familiar with candlestick charting patterns. However, many chartists are not certain about how to interpret the dozens of indicators found through candlestick analysis, or how to use candlesticks along with other indicators to confirm reversal and continuation forecasts. This has led to the desire among traders for a consistent, reliable, and powerful system that supplies them with more and better information.

As a part of this desire among traders for more and better information, the enthusiasm for candlesticks as informative representations of price movement is due to their many attributes, including:

1. *Instant recognition.* The significance of a series of candlesticks is recognizable at a glance. A strong upward or downward movement is visible not only because of the direction of price trends, but also because of the color of candlesticks. The strength or weakness of momentum is further visible in the evolving height of candles, the volatility of trading range, and the special meaning of exceptionally large or small sessions.

2. *Valuable confirmation.* Technicians know that any indications of significance (breakout and a new trading range, resistance or support testing, and gapping action, for example) need to be confirmed before entry or exit should occur. But how do you confirm and then decide before the important and expected price movement takes place? The answer is found in candlesticks. Anticipating price movement rather than following it helps every trader improve the timing of entry and exit through the use of candlesticks to confirm traditional charting patterns and indicators.
3. *Variety of indications.* There are dozens of candlestick indicators, and each has a specific name. How many? This book defines and illustrates approximately 200 candlesticks and related terms. The distinction between the number of sessions involved with a particular candlestick indicator can be confusing; for this reason, the terms used in this book are “sign” (single candlestick), “move” (two-session indicators), and “pattern” (three sessions). While the time span of sessions may vary from seconds or minutes up to hours, days, or even weeks, the chart examples provided in this book

are those of daily charts; and the sessions are described as “days”—however, the observations of indicators and their meaning apply equally to charts of all durations.

4. *Applicability for a range of trading purposes.* Candlestick signs, moves, and patterns provide valuable price movement insight for a range of purposes. These can be used not only as confirmation tools, but also to augment day trading or swing trading strategies, timing of options trades, identification if current price volatility, and even for timing of purchases as part of a value or growth investing strategy.

This book provides a convenient and easy-to-use summary of candlestick patterns. It is arranged in the following chapters:

- *Types of charts.* Candlesticks are the most valuable of charting systems; this section compares them to line charts and OHLC varieties.
- *The history of candlesticks.* Here are brief explanations of where Japanese candlesticks were first used and how they became popular in American technical analysis.
- *Candlesticks and their attributes.* This is a summary of the parts of the candlestick and what each reveals, in terms of shape, size, and color.
- *Pitfalls of candlesticks.* Like all systems, candlesticks cannot guarantee 100 percent accuracy in timing of entry or exit. They can provide improvement over analytical skills and the timing of entry and exit. However, traders should be aware of the pitfalls within the world of candlesticks as well as the advantages.

■ *Confirmation.* The key to all technical analysis is confirmation, the verification of what one indicator reveals with the same prediction offered by a separate indicator.

■ *The six basic candlesticks.* Although there are dozens of possible candlestick indicators and combinations, they all consist of combining six basic candle types.

■ *Candlestick alphabetical entries.* This section contains entries with descriptions as well as two illustrations for each: a small view of the candlestick followed by an actual example on a chart of one of 50 selected stocks.

■ *Noncandlestick confirmation indicators and terms.* These are traditional Western indicators (as opposed to Eastern, or candlestick types) used to confirm what candlesticks first predict, or that predict changes that are then confirmed by candlestick indicators. The section also explains principles of technical analysis related to overall methods, or to both Eastern and Western charting techniques.

■ Answers to Test Yourself, for e-book users, are provided through the previous sections of the e-book. These consist of multiple-choice, true/false, and chart-completion exercises.

■ *Bloomberg systems.* A brief explanation of how the Bloomberg terminal provides basic keystroke commands to begin the process of using candlesticks and their charts.

The stock charts employed are those of 50 well-known listed companies, shown in three-month timeframes. Additionally, many of the alternative charting types and

traditional technical indicators are also explained in the context of how they work along with candlesticks. Some discussions of signals and what they predict are not shown completely in these limited timeframes, so in these cases the text explains what followed (or preceded) the indicator shown within the three-month timeframe.

This book is highly visual and takes you through all of the information you need in order to master candlestick charting in the broader context of technical analysis. The purpose of setting up the book with these visual aids and in alphabetical order is to explain the meaning of each candlestick indicator, not only by defining the indicator itself and how it appears, but also to provide an analytical context. Knowing the importance of a candlestick indicator as it appears in the price chart helps improve the timing of entry and exit. Every trader needs to rely on analytical signals and patterns to anticipate price movements and to confirm those movements as rapidly as possible. This is where the strength of candlesticks is most important and most valuable.

The inclusion of several traditional Western indicators helps you further see how confirmation works

between the two approaches to charting (with “Western” being the traditional price patterns so popular with technicians, and “Eastern” being candlesticks). Neither is better or worse, but the disciplines are separate. The greatest value in charting and technical analysis is derived by using the best of both sides to improve insight, anticipate price movement and momentum, and time entry and exit. This book is designed to enhance your charting skills by knowing how to best employ candlestick charting techniques.

One problem in relying on fixed-period charts to explain or check indicators is that the proof of a reversal or continuation often extends beyond that period. In many instances, the indicators are proven or disproven by long-term price patterns in the periods after the period shown. This is unavoidable. No matter how long a period might be used in plotting a candlestick indicator and its later outcome, there will always be ramifications that need explaining. With this limitation in mind, many of the explanations of indicator outcomes include mention of price developments taking place after the three-month timeframe shown in each chart.

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# Types of Charts

Traders can use a variety of charts. Today, candlesticks are recognized as the most practical, simple, and easy-to-use charting formats. The structure of the candlestick provides all of the information traders require, not only in a single session but also over as long a period as a trader wants to analyze.

Many other kinds of charts have been used in the past.

The **line chart** consists of data points, all connected into a continuous line from one session to the next. The line usually represents each session's closing price (although line charts may include multiple lines to indicate both opening and closing price).

The greatest problem of the line chart is that it does not provide important data such as price gaps, momentum changes, or distinctions in session-to-session trading range. It is very simple, but it does not give

analysts many of the rich forms of insight about the nature of trading in an issue. In comparison, the candlestick chart is very valuable in what it provides.

A comparison between the candlestick and the line charts demonstrates the difference in what can be gleaned from each. The next figure shows the candlestick chart of Yahoo! (YHOO) over a three-month period. Note the variations in candlestick length, color, and especially the extension of shadows. For example, the very visible upper shadow early in November precedes the downtrend, visually showing that buyers were not able to create upward momentum. The long candlestick of November 30 is followed by a white soldiers pattern leading to an uptrend. These short-term indicators are among the most valuable candlestick signals.

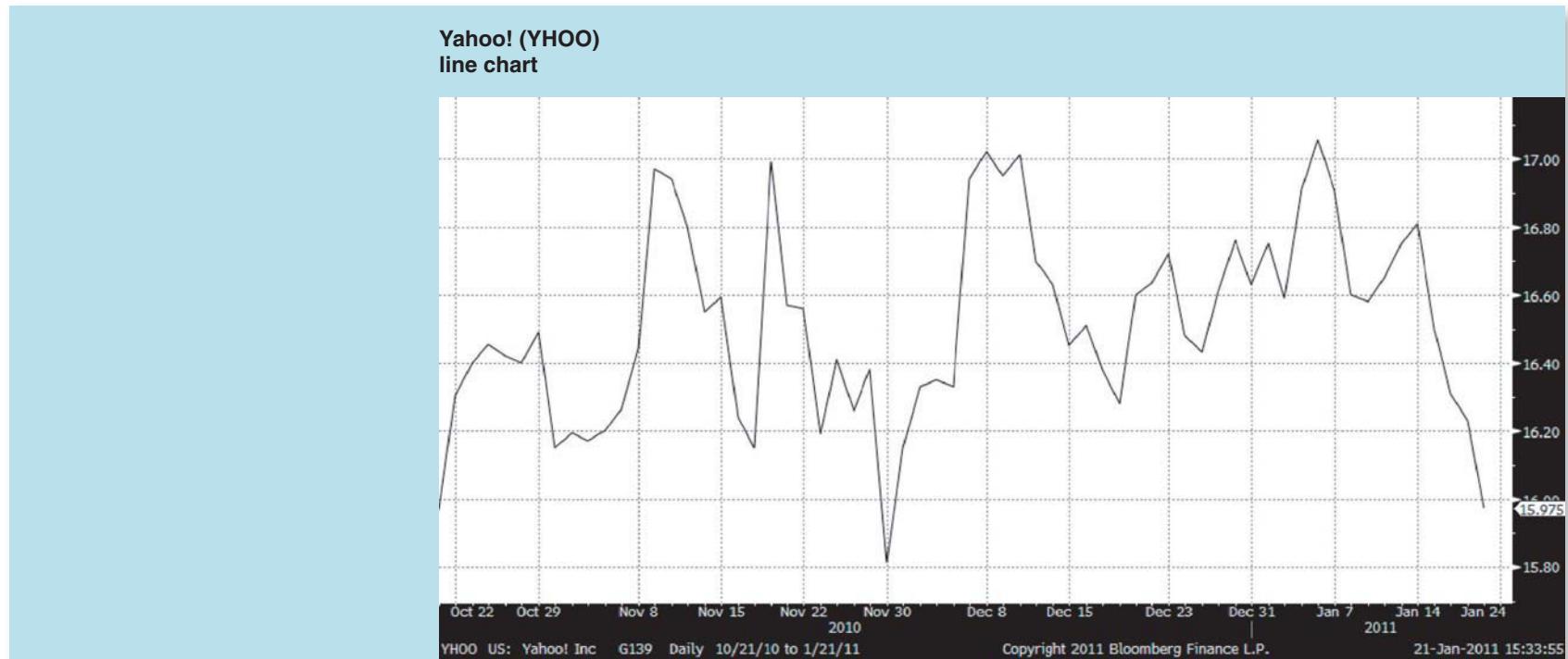
## KEY POINT:

Candlestick charts are the most useful, practical, and visual of all charting systems. Older-style charts like the line chart and OHLC chart are no longer practical and are more limited.



In comparison, the line chart for the same period provides very little information concerning reversals. The price movement is the same as that on the candlestick,

but very little can be taken from this line chart to anticipate where price is likely to move next, nor does the line chart provide any daily breadth or momentum signals.



**KEY POINT:**

Line charts are not as effective as candlesticks in spotting entry and exit signals, notably for reversals that are very visible on candlestick charts.

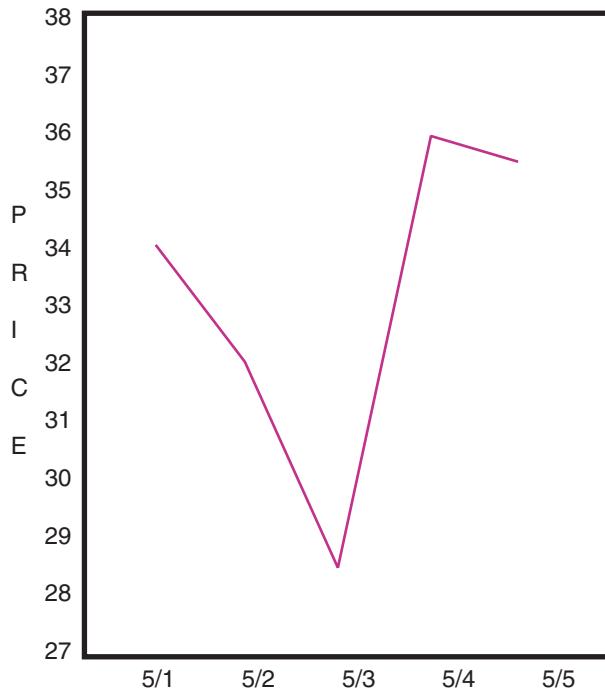
**Example of chart construction:**

On May 1 through 5, the following closing values were found:

5/1	\$34.00
5/2	32.15
5/3	28.50
5/4	36.00
5/5	35.50

To construct a line chart based on five closing values, you need only to connect a series of lines representing those closing prices.

The completed version of the line chart follows:

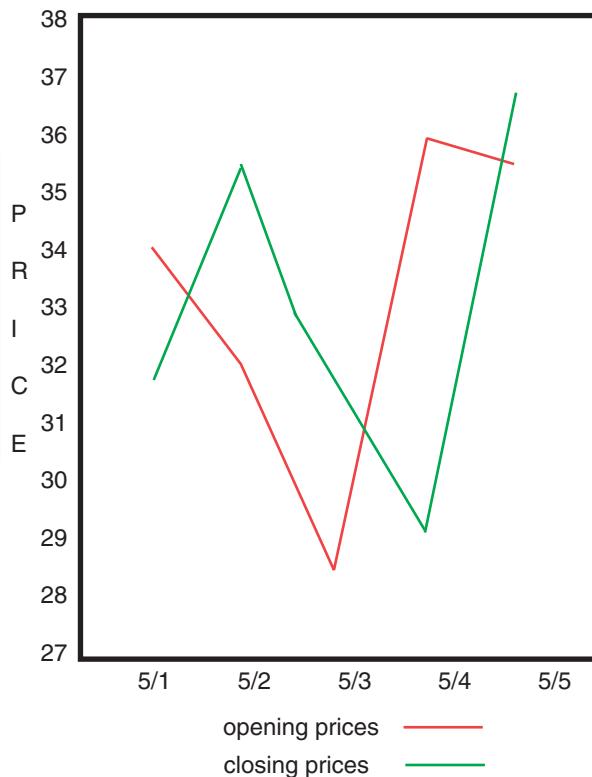
**the closing price line chart**

**Expanded example:**

The line chart can be expanded to include two separate lines, one each for opening and closing prices. A second line chart can also be created based on the following values:

	<b>opening prices</b>	<b>closing prices</b>
5/1	\$31.75	\$34.00
5/2	\$35.50	32.15
5/3	\$33.00	28.50
5/4	\$29.25	36.00
5/5	\$36.75	35.50

A two-line version of the line chart shows both opening and closing prices. The completed two-line version of the line chart follows:

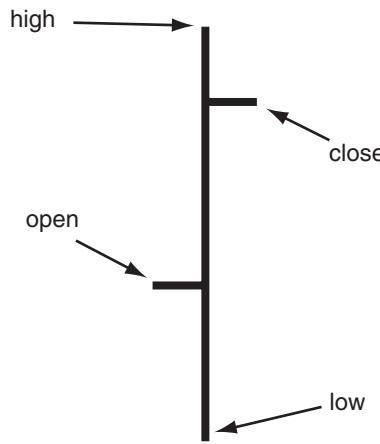
**the opening and closing price line chart**

**KEY POINT:**

The OHLC chart includes the same information as that on a candlestick chart. However, it is nowhere near as visible as the indicators reflected through candlesticks.

Another popular form of chart is the **OHLC chart** (open, high, low, close) chart. This is a simplified tracking system in which each session contains four specific markets. The session begins with a vertical line extending from the high at the top, down to the low at the bottom. The session's opening price is represented by a smaller horizontal extension attached to the left of the range stick; and the closing price is found in a similar horizontal extension to the right.

The OHLC chart is an improvement over the more primitive line chart, even though it is not as visually as easy to follow as the candlestick chart. It provides all of the same data (open, close, range, and direction) but is more difficult to track. Gaps do show up, but overall the OHLC chart is a difficult tracking device compared to the candlestick. It is possible to find and identify the same reversal and continuation indicators that candlesticks provide, but it takes greater effort to spot them.

**the OHLC chart**

The candlestick chart for Google (GOOG) shows clearly the directional trends and strength of momentum, notably at the turns. The following illustration con-

tains several clear candlestick indicators (black crows occurring at the middle of November, and doji followed by gaps in the third week of December, for example).



An OHLC chart for the same period provides identical information, but it is more difficult to read. For example, the many gaps occurring between sessions with overlapping trading ranges (hidden gaps) are very hard

to spot and even harder to interpret. Even though the same data are found on the OHLC chart, the candlestick version is an easier analytical tool.



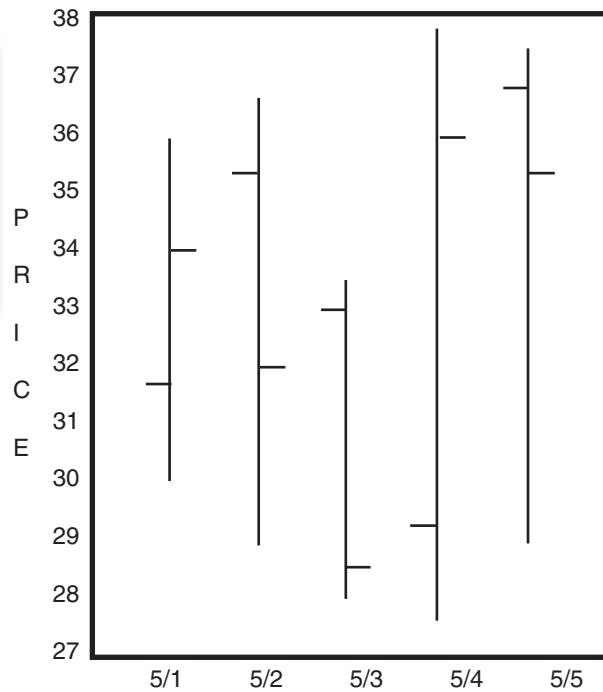
An OHLC chart can be constructed based on the following values:

	<b>opening prices</b>	<b>closing prices</b>	<b>daily high</b>	<b>daily low</b>
5/1	\$31.75	\$34.00	\$36.00	\$30.00
5/2	\$35.50	32.15	36.50	29.00
5/3	\$33.00	28.50	33.50	28.00
5/4	\$29.25	36.00	37.75	27.50
5/5	\$36.75	35.50	37.50	29.00

The OHLC chart reveals all of the information shown on the candlestick chart, but with less visual value. The completed OHLC chart reflecting these daily values is shown next.

Charts can be created and saved in many formats, including bar charts, point and figure charts, and other creative variations. The appeal of alternate charting systems is a throwback to the days before the Internet, when charts had to be created by hand or bought from charting services. In that environment, simplified chart creation made sense. Today, charts are easily and automatically created in any format desired. The candlestick chart is visually the most revealing and easiest to use among the many charting formats.

**the OHLC chart**



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# The History of Candlesticks

**M**okarimakka? This traditional greeting among business people in Japan means, “Are you profiting?” The culture of investing and trading goes back centuries in Japan, and at the core of this tradition is the candlestick.

This is a device for visually expressing movement of price, in terms of direction, strength, and the more subtle price range versus opening and closing price levels. A single candlestick of one session (a day or other increment of time) is revealing by itself. When combined with two, three, or more consecutive sessions, a candlestick chart reveals a pattern of trading, likely reversal points, and momentum.

Candlestick terminology employs phrasing that is both descriptive and, in many cases, warlike. When candlesticks were originally developed, Japan was in a long-term era of war and conflict, and this was reflected throughout the culture of the 16th and 17th centuries.

## An Era of Commerce and Growth

By the early 17th century, Japan’s warlike culture had settled into a commercial alternative. Osaka, due to its location near the ocean, became the cultural and trading center of the country. Called the “kitchen of Japan” due to its central location for moving products to and from markets, Osaka also evolved into a trading center for commodities, notably rice.

In the 17th century, Japan recognized four classes of citizens: soldiers, farmers, artisans, and merchants. One prominent merchant was Yodoya Keian, whose influence enabled him to set the price of rice. The first rice exchange in Japan was in his front yard in the late 17th century and was named the Dojima Rice Exchange, the first commodities exchange in Japan. However, because the Japanese government was keenly interested in

### KEY POINT:

“Are you profiting?” is said in Japan. Even today, this is a common greeting among traders in Osaka.

## DEFINITION: **Shogunate**

A Shogunate was a warrior class in Japan, in which the ruling military created a rank of general (Shogun, an abbreviated name of the *seii taishōgun*, or force commander) to control various tribes within the country.

## DEFINITION: **Rice coupons**

The “rice coupon” (also called the “empty rice” coupon), which originated in 1710, was the first instrument for fixing rice prices, and became the first futures contract.

maintaining class distinctions, Keian’s success as a merchant drew attention to him. He had become wealthy, but all of his assets were taken from him by the government, which was led by the military and, especially, by the **Shogunate** warrior class. A wealthy merchant was not acceptable under the rigid class system of 17th century Japan.

Keian was accused of living a lifestyle above his rank of merchant, and this reflected a general distrust among the military of the entire merchant class. When a group of merchants had tried to corner the rice market, the government reacted by executing their children, exiling the merchants, and seizing all of their wealth.

The importance of rice (and rice futures) enabled merchants to organize and price their product even under threat from their military rulers. It was essential to grade rice by quality in order to set prices and to create an orderly market. By 1710, storage houses were issuing receipts called “**rice coupons**” (also called “empty rice” coupons) fixing prices of the grain, and these became the first form of a rice futures contract.

This system of orderly pricing and rice futures created the wealth of Osaka, which also led to rice being used as a form of currency. At the time, Japanese coinage was not reliable as an exchange medium, so rice futures provided a reasonable alternative monetary system. A farmer could fix the future value of his rice production, often for many years in advance. The futures system was very successful; in 1749, the exchange transacted 110,000 bales of rice, even though only 30,000 bales existed at the time. Several future crop years had been priced through

the “empty rice” contracts, and today the worldwide commodities market functions on the same methods.

## **The God of the Markets**

By the mid-18th century, trading in rice futures was formalized and the first appearance of the *candlestick* occurred. Munehisa Homna (also called Sakata) was called “the god of the markets” because he was the most successful trader of the time. He moved his family’s firm to Edo (Tokyo), where he began researching and correlating price movements, crop yield, and weather conditions. Recognizing repetitive patterns in rice commodities pricing, he devised a system for identifying trends, with what is known today as the candlestick. The entire Japanese investing philosophy was based on Homna’s observations.

In the Western world, candlesticks have been used in charting and technical analysis only since 1989. Prior to that time, traders in the United States based their methods on the tradition of bulls and bears and the ideas of Charles Dow. Even when candlesticks were introduced, they were perceived as difficult to understand, and little interest in Japanese methods was evident. Today, candlestick charts can be viewed with the click of a mouse and adjusted for trading periods and even for sessions of different durations. The automation of charting and the ability to overlay as many indicators as desired have brought candlestick analysis into the mainstream of Western technical analysis. Today, traders do not need to choose between Western and Eastern analysis; both

can be used to make the overall process of analysis and confirmation very dynamic. Entry and exit timing is vastly improved by using both systems together.

## Candlesticks Come to America

In 1989 in *Futures Magazine*, Steve Nison published his first article about candlestick analysis. He is the founder of Candlecharts.com but is better known as the pioneer of candlestick charting outside of Japan. He authored the first U.S. book about candlesticks, *Japanese Candlestick Charting Techniques* (1991) and also wrote *The Candlestick Course* (2003).

Although Nison was the first modern analyst to introduce candlesticks to the West, it was Charles Dow who first noted their value. In 1900, Dow observed that there were many ways to express price trends, including the Japanese methods. However, the time required to construct each day's session prevented this initial research from progressing further. The Dow Theory and pre-Internet charting techniques survived, but candlesticks went dormant for the next century. The Dow Theory forms the basis of modern technical analysis, also called "Western" analysis (compared with candlestick charting, or "Eastern" analysis). The Dow Theory is based on a set of six observations about price trends. These are (1) the market has three kinds of movements: primary, secondary, and minor; (2) market trends have three phases: accumulation, public participation, and distribution; (3) the stock market discounts all news; (4) stock market averages must confirm each other before a trend or

change in trend is accepted; (5) trends are confirmed by trading volume; and (6) trends continue until a specific signal ending a trend is discovered.

Candlesticks were not popular in the United States until the Internet made it possible for traders using online systems such as the Bloomberg Professional terminal and its Launchpad platform to automate charting and to create immediate value in candlesticks and other types of technical data.

Nison's early work in candlestick research formed the basis for candlesticks as they are used today. Now, most online services provide candlestick charting as the default format for research. Most traders understand the basic concept of the candlestick itself and of how charting appears based on price movement and trends; however, the intricacies of candlestick analysis are not widely known among traders, whose reliance on Western charting techniques often excludes consideration of the candlestick as a valuable indicator for spotting and confirming the same price trends that Western indicators provide.

Candlesticks use and report the same daily information as other charting systems—the opening and closing price, and the daily high and low—but they are far more visual not only for each session but over many periods. This makes it possible to visualize trends as they evolve and to see changes in momentum as price moves from day to day. Even though there are dozens of candlestick indicators of one, two, or three sessions, learning to interpret and apply candlesticks is not difficult. As a visual system, it is far easier to interpret than the

### KEY POINT:

The introduction of candlesticks to the West was by Charles Dow. In 1900, he observed the Japanese method as one of many ways to report price trends, but it was a century before the Internet and the system did not catch on.

### KEY POINT:

Launchpad delivers all the rich content of the Bloomberg Professional service in a customizable and persistent desktop format, so you see the real-time information that's relevant to you and your strategies. The result? You can make quicker, smarter investment decisions.

(This text from Bloomberg's website, [www.bloomberg.com/professional/charts\\_launchpad/](http://www.bloomberg.com/professional/charts_launchpad/))

less visual line or OHLC charts that were used widely in the past.

The combination of Nison's research and publications, aided by subsequent mainstream acknowledgement of candlestick analysis, have made candlesticks popular as one of many systems for tracking prices. As a charting method, candlesticks are clearly the best system available, explaining their widespread use among

technicians and chartists. The Internet has overcome the problems of constructing charts from scratch; it has also made it possible to pass information among traders about using candlesticks to find and confirm price continuation and reversal. Today, candlesticks are not foreign, complex, or mystical. They have become the mainstream charting tool for most Western price analysis.

# Candlesticks and Their Attributes

**C**andlestick attributes features and trend indicators found on every candlestick. The value to this form of charting is found in the fact that all pricing data for a session is easily identified at first glance and that viewing a series of sessions helps traders easily identify momentum, direction, and reversal.

The attributes of every candlestick are defined in three areas:

**1. Opening and closing price.** Each session's opening and closing prices are found at the horizontal borders of the rectangular box for the session. The opening price is at the bottom of a white candlestick or at the top of a black candlestick. The closing price is at the top of a white candlestick or at the bottom of a black candlestick. The rectangular box is called the real body. When the opening and closing price are identical or very close, the real body is replaced by a horizontal line. This type of formation is among the most revealing of candlestick sessions and is called a doji (in Japanese, "doji" means "mistake").

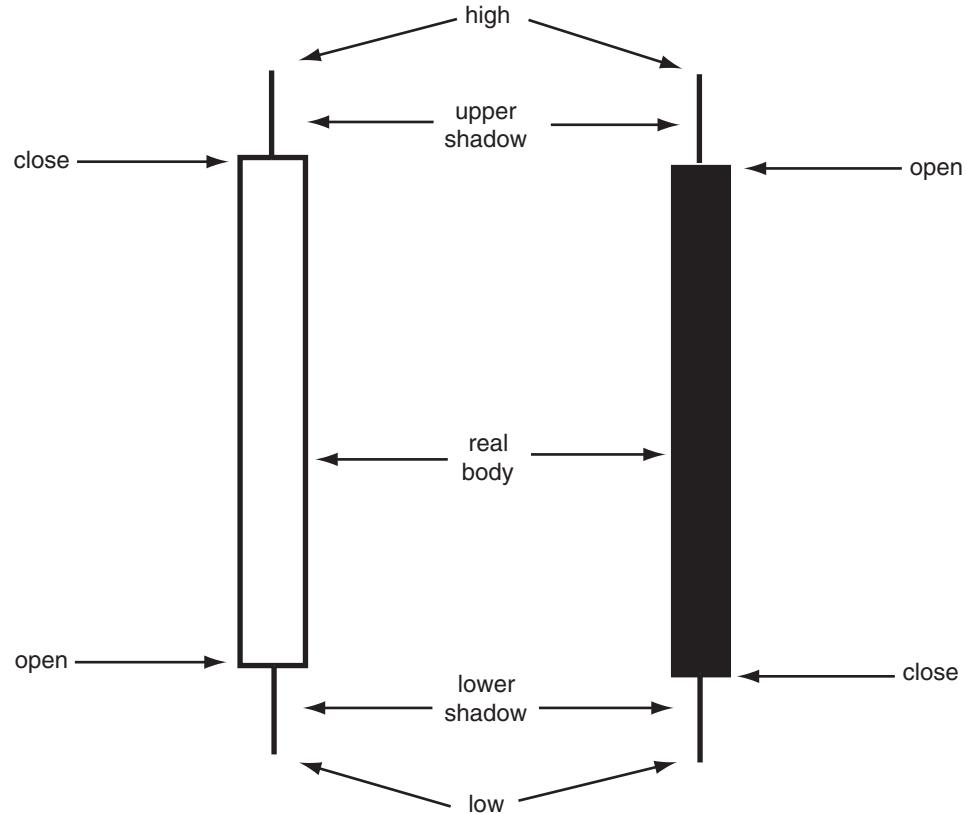
**2. Trading range from high to low.** The full trading range for each session is represented by the upper and lower extensions from the real body. These are called the upper shadow and lower shadow (also called tails or wicks). The complete lack of shadow has significance in many candlestick formations, and an exceptionally long shadow also reveals failed momentum by buyers (long upper shadow) or sellers (long lower shadow), signaling potential reversal of the existing trend.

**3. Direction of movement.** One of the most powerful visual attributes of candlestick charting is the ability to immediately see the overall direction that price is moving. While line charts and OHLC charts reveal direction through the shape and duration of each session, the candlestick short-term trend is easily spotted. A white candlestick reveals that the session moved upward, and a black candlestick reveals a downward-moving session.

## KEY POINT:

Every candlestick provides price information in three major areas: opening and closing prices, trading range, and direction.

**candlestick attributes**

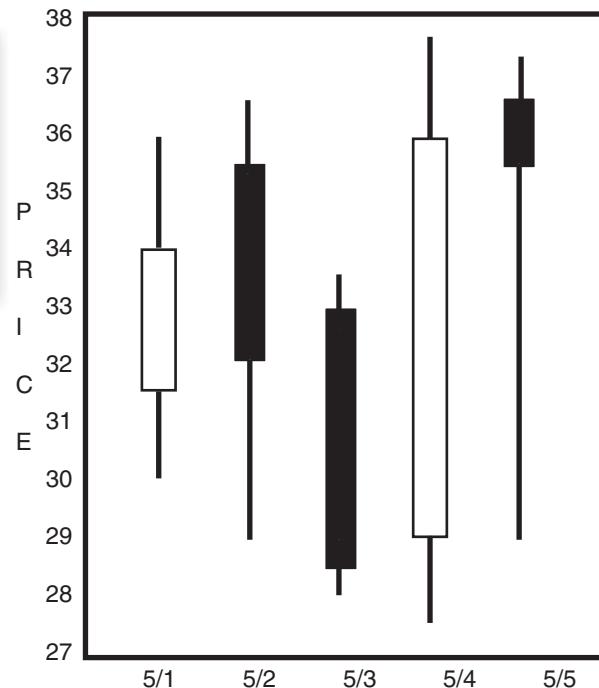


A candlestick chart for five sessions requires the following values:

	<b>opening prices</b>	<b>closing prices</b>	<b>daily high</b>	<b>daily low</b>
5/1	\$31.75	\$34.00	\$36.00	\$30.00
5/2	\$35.50	32.15	36.50	29.00
5/3	\$33.00	28.50	33.50	28.00
5/4	\$29.25	36.00	37.75	27.50
5/5	\$36.75	35.50	37.50	29.00

The attributes of candlesticks include the opening and closing prices, the high and low for the session, and the direction (white for upward sessions and black for downward sessions). A candlestick chart for these is as follows:

**the candlestick chart**



## DEFINITION: **Marubozu**

"Marubozu" is a Japanese word meaning "little hair." This is a long candlestick with little or no upper or lower shadow. As significant as a long candlestick is, the marubozu is exceptionally revealing; the lack of shadows identifies momentum and control on one side or the other.

## DEFINITION: **Doji**

The doji (Japanese for "mistake") is a session in which opening and closing prices are identical or very close.

## KEY POINT:

Doji significance (like marubozu significance) is a relative matter based on price levels of the stock. For example, a one-point move in an \$80 stock is a 1.25 percent change, but the same one-point change in a \$10 stock is a 10 percent move.

## **The Importance of Long Candlesticks**

Beyond the revealing attributes of the candlestick's color and extensions, its shape and size is equally important. The longer the real body, the more struggle there is between buyers and sellers. So long candlesticks often signal continuation or reversal. When the long body appears in the same direction as the existing trend (white in up-trends or black in down-trends) it indicates continuation. When the long session is opposite, it often serves as a signal of reversal, either by itself or as part of a multisession reversal indicator. This is especially true when the long session also marks or touches resistance or support, or when price breaks through those levels and then retreats.

One form of the long candlestick is the **marubozu**, which has little or no upper or lower shadow. The lack of extension above or below the session's open or close indicates exceptional strength in the direction the long session moves. This reveals which side (buyers or sellers) are in control of price movement and which side manages the momentum in price.

Although shorter than average candlesticks signal less volatility and even consolidation—a form of "agreement" between buyers and sellers, a very narrow range (doji) session can signal more volatility.

## **The Opposite: The Extremely Narrow-Range Session**

As important as long candlesticks are in identifying momentum and control issues between buyers and

sellers, a different kind of importance is attached to very short sessions. The **doji** session is one in which the real body is so narrow that it consists only of a horizontal line (identical price or very thin range between high and low).

Swing traders look for the narrow-range day (NRD) as an important turning point in a short-term trend. Candlestick terminology is different, but analysis recognizes the same significance. The doji is the candlestick name for the NRD.

The upper and lower shadows on doji sessions vary and provide different signals, based not only on the size of the shadow but also on where the doji appears in the current short-term trend. A doji might look like a cross (with both upper and lower shadows) or contain upper shadows only or lower shadows only. The most important attribute of the doji is that it indicates a very tight struggle between buyers and sellers. The fact that neither side was able to move price off the open during the session is revealing to the analyst; the more shadow movement occurring within the session, the more important the doji becomes in how the current trend has to be interpreted.

The meaning of candlestick breadth varies in importance based on sessions surrounding the change. For example, when a doji is found after a period of very low volatility, it probably does not contain a lot of meaning. However, when it follows a very volatile period of long candlestick sessions, price gaps, and tests of resistance or support, a doji has greater meaning, especially if one or both of its shadows are also long.

## Attributes Missing in Candlestick Analysis

No form of charting is perfect and, like all types of charts, candlestick charts have flaws. To truly understand how a session's price action has developed and what it reveals, the sequence of events has to be tracked throughout the session. Candlesticks show the range between open and

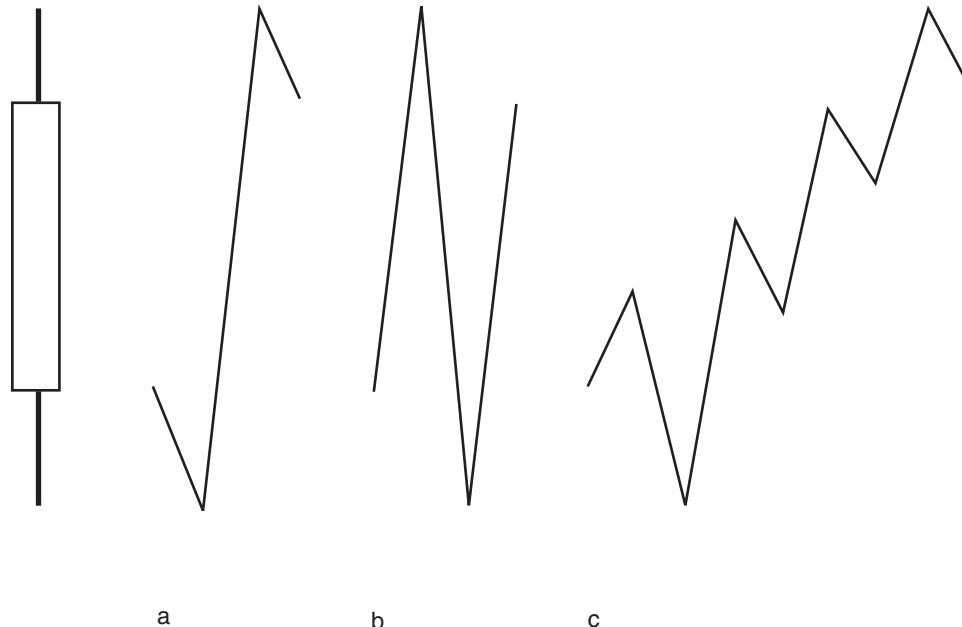
close, and the distance between high and low, but they do not reveal the sequence in which that occurs.

This is why chartists like to compare daily candlesticks to charts with higher frequency duration, such as one-hour or 20-minute charts. These more-frequent-duration charts track the sequence of price history throughout the session, revealing more price action and improving entry and exit timing.

### KEY POINT:

A daily session is summarized by a candlestick, but this does not disclose the sequence of price change during the day. For that you need shorter-duration charts, because sequence can be as revealing as open, close, high, and low prices.

**sequence variations**



### KEY POINT:

Many possible sequencing variations are possible. Studying a full day's sequence is likely to affect a trader's opinion about momentum, volatility, and overall trend strength.

A session's change can take many forms. This is demonstrated in the preceding figure. The candlestick chart reveals an upward-moving session with moderate upper and lower shadows, but that is the extent of what it discloses.

In variation a, the session price falls to the low of the day, moves to the high, and retreats to the close.

In variation b, the price moves first to the high, retreats to the low, and then rises to the closing price.

In the final variation, c, the price moves upward and downward in a series of exchanges that reveal a more robust struggle between buyers and sellers.

With these three examples of possible sequencing of price during the day (and keeping in mind that many more variations are also possible), it is clear that the daily session's summary does not reveal all that a trader might need to know. The solution to the problem of hidden sequencing is to combine daily session analysis with intraday charts of varying duration. This enables the trader to see how quickly price levels change and how much volatility is taking place, factors that are likely to be invisible in the candlestick summarizing the entire day's trading.

# Pitfalls of Candlesticks

Most traders understand that no system can provide complete accuracy. All signals fail some of the time, and some may even provide opposite indicators based on what follows. One purpose of this book is to present the various types of candlestick formations and to demonstrate how interpretation is supposed to take place. This means checking for confirmation as well as understanding the degree of reliability to a particular indicator.

Traders using multiple disciplines (Eastern as well as Western technical analysis) may expect to improve their reading of charts and, as a result, an improved level of timing. This means that the accuracy of entry and exit will also improve, but no one will pinpoint the perfect entry and exit all the time. If a trader is able to increase the percentage of well-timed decisions, then overall improvement in trading experience results.

Eastern indicators (candlesticks) are revealing and often pinpoint reversal or continuation. However, these are most effective when confirmed by other indicators, notably Western ones (tests of resistance and support,

gapping price trends, triangles, and signals that track volume, momentum, and moving averages).

The use of any technical system relies on an understanding of how technical analysis works, either apart from the fundamentals or as part of a coordinated strategic approach. A pure chartist tracks the patterns of price movement and momentum among buyers and sellers. The belief in this approach is that price movement is very predictable.

It would be a mistake to believe that candlestick charting ensures 100 percent accuracy or guarantees the timing of entry and exit. Candlesticks are among many tools that technicians use. The chart itself does not lead price into reversal or continuation; it simply reflects an ever-changing market environment. In that sense, any particular price pattern is not “caused” by candlesticks but instead is a response to an infinite number of possible causes within the public markets. A candlestick indicator forms based on these factors and becomes a visual representation of more subtle forces at

work: supply and demand, momentum, and public perceptions about markets—as well as economics, politics, and global trade, to name only a few.

This reality points out the importance of coordinating many sources of information, including:

- Western technical analysis, including familiar and popular charting techniques based on observations of trading range, resistance and support, and the patterns and features of price movement.
- Eastern technical analysis, a range of price patterns and likelihood of reversal or continuation represented by candlestick signs, moves and patterns.
- Fundamental analysis, the study of recent financial results as a means for identifying trends in operations, working capital, and competitive strength.

This book shows candlestick indicators at work in actual charts. The ideal candlestick formation is rare, so analysts must settle for close approximations, and even for accepting and acting on indicators that do not contain all of the desired attributes. Just as it is important to demonstrate that candlesticks lead to a predictable outcome, it is equally important to show that in some cases the prediction does not come true. These failed signals are crucial to recognize because, just as successful ones lead to a well-timed decision, a failed signal helps prevent an ill-timed decision.

Hindsight is easy because a price trend can be reviewed in its full context and outcome. However, in the moment, there is no way to know how price will move.

An analyst or chartist may only use skills to recognize patterns and then seek confirmation. The goal is never to achieve total accuracy in timing, but to improve timing to increase the frequency of profitable outcomes and reduce the frequency of unprofitable ones. The candlestick may confirm other indicators or be confirmed by what follows. Like all technical indicators, candlestick formations are only reflections of market and external factors that collectively move prices in one direction or the other. From there, the quest for certainty has to rest with confirmation, a gathering of more and better information.

Pitfalls are going to apply in all analytical systems, especially in the short-term chaos of the markets. Price movement has a random character in the moment, so the challenge of technical analysis is to identify signals that are meaningful and then seek confirmation of what those signals predict. There are four specific types of pitfalls that traders need to watch for in any technical system. These are:

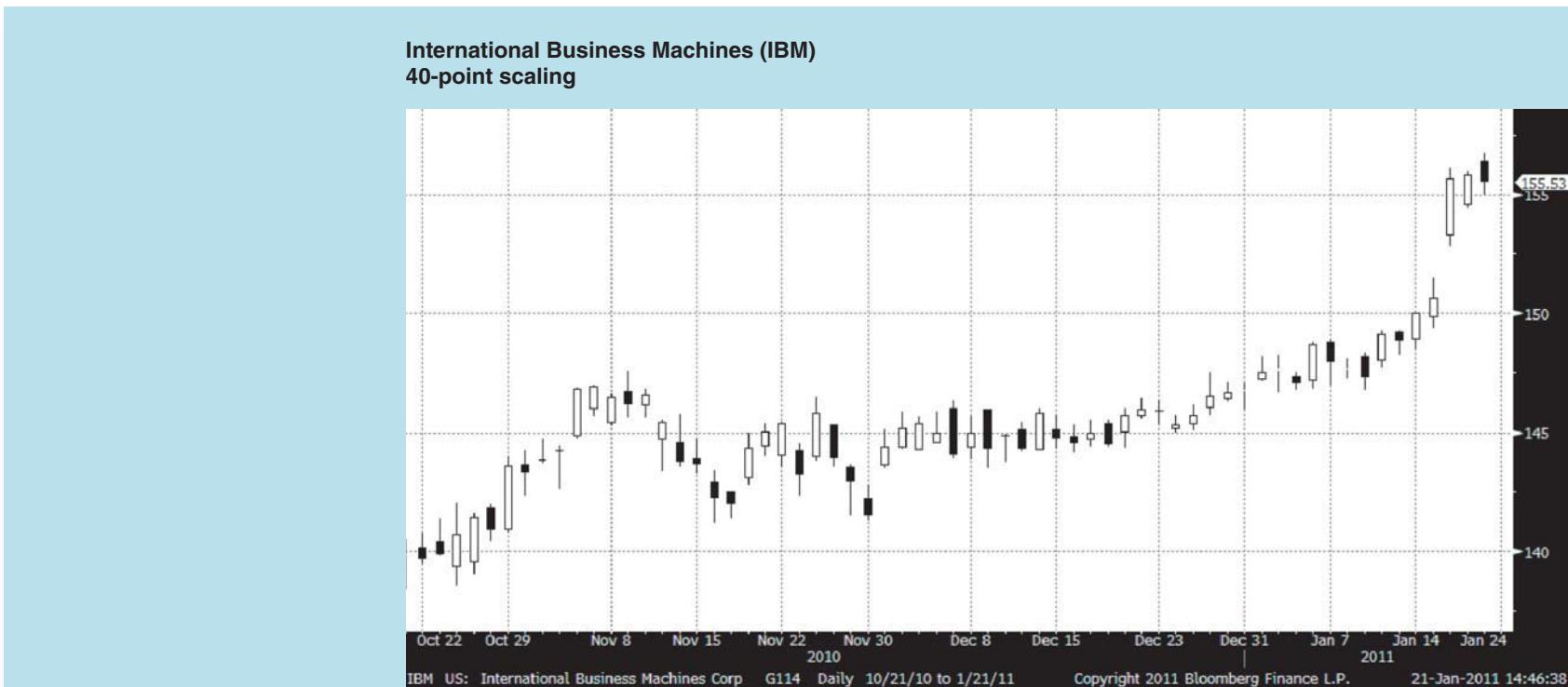
1. *Charting philosophy.* A practical point of view about all forms of charting is that price patterns are reflections of change. Thus, fundamentals (earnings reports or dividend announcements, for example) have an immediate impact on price, and that is going to show up in how price moves on the chart. Price patterns do not *cause* reversals or continuation patterns; they are symptoms of a broader effect that is caused by marketwide or company-specific events, some obvious and others subtle. It is easy to fall into the pitfall of viewing indicators, both Eastern and Western, in a

cause and effect manner. This is a mistake. Price patterns occur in reaction to other matters.

- 2. Scaling and possible misleading conclusions.** Charts are constructed to scale price movement based on the size of the chart itself. So if a selected time period involves a price movement of 40 points, the scale of the chart is adjusted to center the price activity during that period. The chart of a different company might involve a price movement of only three points. Thus, scaling will again

center price activity, but the results may be misleading. For example, on a three-point scale, a one-point move will appear much more volatile than the same point change on a 40-point scale. A long candlestick (one with more range than typical) will appear more often in the smaller scale, creating the appearance of volatility on a higher level than that of a company whose chart is scaled much differently.





An example of this scaling problem can be seen between two sample charts. The chart of Yahoo! (YHOO) covers only three points, and the chart for the same period for International Business Machines (IBM) involves a 40-point range. Although IBM's price movement covered a much wider range, Yahoo!'s chart appears more volatile.

**3. Blending that may distort rather than enlighten.** One technique in candlestick analysis is called blending. In this technique, candlesticks from two or more periods are blended and recalculated to present a different view of the price trend. So a three-session change that provides no insight may be blended into a single candlestick that provides a strong indication.

Properly applied, blending is nothing other than a change in the period analyzed. Just as traders may study charts on the basis of an hour or 20 minutes rather than a full day, the definition of a session can be expanded to cover several days.

Blending is an effective technique if used cautiously and only in circumstances justifying it. However, it is crucial to observe that a period-to-period comparison is going to be distorted if the blended candlestick is compared to previous single sessions. When the sessions are dissimilar, the outcome has to be viewed with the distortion in mind.

It is also possible to blend any set of candlestick outcomes in a way that distorts the true meaning of the indicator, so that the insight expected is obscured. For example, one of the more interesting three-session indicators is called a squeeze alert. This involves a long candle session followed by two sessions each smaller on both the opening and closing (they are squeezed within the range of the first session). A bear squeeze alert starts out with a white session, but it predicts a coming price decline. If all three of these are blended, it looks like a long white candlestick, which is bullish. In this example, the blending of a strong bearish signal creates a bullish signal.

- 4. Forcing indicators.** The quest for “good” and “reliable” information is a constant struggle for chartists. Knowing how to interpret a signal is never easy, and one pitfall is to seek information where none exists. During sideways price movement, for example, it is quite possible that no important information is going to develop. Traders have to wait out the indecision

between buyers and sellers before a new trend develops. Any indicator must be confirmed before acting on apparent signals.

For example, the chart for Apple (AAPL) displayed a long period of sideways movement and indecision. At such times, any indicator must be confirmed by other indicators before taking action. Three examples of this are shown in the next figure.

The first looks like a strong uptrend. Four sessions move upward with price gaps and it would be easy to assume that the price direction is likely to continue. As it turns out, this would have been a forced assumption. Without confirmation, some signals—like this one—are false leads. The same is true for the second signal, an apparent start of a downtrend. After four black sessions, traders might easily assume that prices will continue moving south. Finally, the black session might appear to provide a reversal and pending downtrend, but prices continues to drift sideways.

This example demonstrates how easily indicators can be forced. Traders in long positions may find themselves seeking bullish signals because, if price does turn upward, they will make a profit. However, in some cases a bullish signal will not be found because price is going to move sideways or down. The pitfall is a form of wishful thinking, and as a matter of gaining experience traders will benefit from knowing about this danger and striving for objectivity. In other words, it is more rational to study the signals to judge price movement, rather than seeking the type of price movement a trader desires.



Traders struggle with these pitfalls every time they look at a chart. Maintaining objectivity is difficult because everyone has specific biases toward bullish or bearish movement, as well as toward stocks they love or hate (often not for rational reasons). The truth, however, is that a trader will maintain objectivity by ignoring the emotional tendency to like or dislike a particular company or trend, and to recognize the one universal truth about technical

analysis: It is possible to achieve profits in all types of markets, including bullish, bearish, and sideways trends. However, in order to be able to position themselves to profit, traders are going to have the best results when they remain analytical and avoid following the crowd or reacting the way most traders do, emotionally.

The overall pitfall to trading is to “gut react” to price changes. When prices rise strongly, the emotion of greed

causes a majority of people to jump into long positions. This often takes place right as prices peak. When prices fall, a majority tends to panic and sell to avoid further losses, and this is most likely to happen at the price bottom. So instead of applying the “buy low and sell high” approach, the outcome of this broad pitfall is to “buy high and sell low.”

The contrarian approach to trading is the best way to avoid following the crowd and timing entry and exit poorly. By recognizing that the emotions of greed and panic dominate short-term trading, traders can adopt a smart strategic approach and move opposite of the majority. A market adage summarizes this approach well: “Bulls and bears can make money, but pigs and chickens get slaughtered.”

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# Confirmation

**C**onfirmation is an important aspect of technical analysis, notably when analyzing candlestick formations. It is the observation of separate and independent signals that verify what the candlestick pattern predicts. For example, a candlestick reversal may be confirmed by tests of resistance or support, momentum indicator changes, or moving average-based analysis. Two or more candlestick indicators may occur in proximity, providing very strong confirmation.

Confirmation is the core concept of technical analysis. Candlestick patterns and indicators are valuable additions to other technical signals, either as confirming indicators or as leading indicators that may be confirmed separately. A test of resistance or support, for example, may be first made by a familiar technical signal (such as head and shoulders or double top or bottom) and then confirmed by strong reversal candlestick signals. Or a candlestick reversal may first appear and then be confirmed by failed tests of resistance or support. There are many possible combinations

of cross-confirmation between Western and Eastern (candlestick) signals.

Traders rely on confirmation to improve their timing of entry and exit. The concept is necessary because no single indicator is always reliable. Even confirmed signals may fail; however, with the use of confirmation, the ratio of successful trade timing improves and failed signals are more easily spotted when secondary indicators contradict rather than confirm what the initial signal indicates.

Confirming indicators are those indicators occurring immediately after an initial indicator, or at the same time, when both point to the same price action expected to follow. A confirming indicator may be based on Western technical analysis or on Eastern (candlestick) signals or both.

A confirming indicator may also consist of a second sign of the same type. For example, an initial candlestick reversal may be followed by an equally strong but different candlestick revealing the same potential. When this occurs, the reliability of the dual signal is exceptionally strong.

## KEY POINT:

Confirmation is the central theme and base of all technical analysis. Properly used, it is likely to vastly improve entry and exit timing.

**KEY POINT:**

Confirmation does not require two separate types of indicators. It can also involve two candlesticks both indicating the same continuation or reversal in price.

**KEY POINT:**

A trendline is a dynamic variety of falling resistance (in a downtrend) or rising support (in an uptrend). It is simply a line drawn to track movement of price, which reverses once the trendline runs into a directional trend in the price range.

The initial purpose of confirmation is to improve timing for trades. Another value is found in how a confirming indicator identifies and confirms a broader trend. A price trend may last only a few sessions, or extend for weeks or even months. Confirmation relying on moving averages, volume trends, and relative strength are valuable in identifying the likelihood of a trend continuing or ending. In this respect, confirmation not only affects the turning point in price, but it also can anticipate an overall weakening in momentum or development of a period of consolidation after a strong or rapid trend has run its course.

Confirmation is also valuable when used to time entry and exit within the context of existing resistance and support levels. Traders recognize the tendency for price to remain within the trading range until a signal changes current conditions. In traditional technical analysis, a failed attempt to break out of the trading range is likely to lead to a price trend in the opposite direction. When this occurs and separate confirmation is found in candlestick formations, the reversal has a better than average likelihood of taking place.

If price does break through resistance or support, traders face an immediate decision point. Will the trend continue and establish a new trading range? Or will the breakout fail, any gaps reverse and fill, and price levels return to previously set levels? The uncertainty of the outcome of a breakout can be clarified with confirmation, notably through candlestick formations that accompany or follow the breakout itself. Augmenting the dual analysis of breakouts and candlestick patterns,

further confirmation may also be found in momentum oscillators and studies of indicators based on changes in volume, moving average convergence and divergence, and other specialized technical signals.

The short-term changes in price direction and strength can further be confirmed and tracked with the use of trendlines and other visual tools. Following a trendline helps identify when a short-term trend is likely to reverse, and if confirmed with candlestick reversal signals, is a reliable method for tracking and confirming price and momentum. An uptrend is marked with a trendline drawn under the price levels from a low point, and it continues until it runs into price that has peaked and reversed. A downtrend is marked with a trendline drawn above the price levels starting from a high point and continuing downward until price reaches its low and then turns.

Confirmation comes in many forms and is applied to short-term or intermediate trends, evolving trading ranges, and momentum. Just as important as confirming an indicated change to make well-timed entry and exit is the opposite theory of contradiction. When two normally reliable indicators do not agree, the significance is uncertain. In this instance, traders have to choose one of several courses of action:

- 1.** Seek confirmation from a new set of indicators.
- 2.** Take no action until the indication is clarified.
- 3.** Select one indicator as more reliable and act based on what it shows.
- 4.** Expand the analysis for more time, sessions of a different duration, or using multiple indicators.

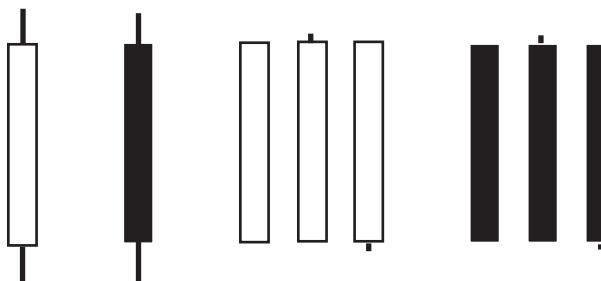
# The Six Basic Candlesticks

Among the dozens of candlestick formations, there exist many combinations of the six basic candlesticks. These are:

**1. Long candlesticks.** The long candlestick indicates a lot of momentum among buyers (long white) or sellers (long black). When there is little or no shadow, the long candlestick is defined as a marubozu. The lack of shadow indicates exceptional strength for one side or the other, because price opens or closes at the opening or closing price without further extension. A marubozu may have no shadows, or a small one at the top or at the bottom of the real body.

The significance of the long candlestick relies completely on placement. For example, a long white candlestick appearing within an uptrend is a strong reversal indicator, but if the same candlestick appears after a downtrend, it is more likely to act as a reversal signal. The same is true for long black candlesticks. Within a downtrend, it tends to confirm, and when it follows an uptrend, it is more likely to signal reversal.

## long candlesticks



long white      long black      white marubozu      black marubozu

**2. Short candlesticks.** A candlestick with average or relatively small extension signals indicates a general agreement between buyers and sellers that the current price is reasonable, especially when short candlesticks appear in a series of sideways-moving sessions. However, when short candlesticks appear following a period of strong trend in either direction,

## KEY POINT:

A long candlestick does not always mean the same thing; it depends on where it appears. If it contradicts the direction of the prevailing trend, it signals reversal; if it conforms to the direction of that trend, it is a continuation indicator.

**KEY POINT:**

The appearance of a single short candlestick is not a signal at all, just part of the normal trading pattern. However, when a series of short candlesticks appears after a period of relatively long sessions, it implies falling momentum.

**KEY POINT:**

A doji to the candlestick analyst is the same thing as the narrow-range day (NRD) to the swing trader. The power of the doji is not only in its identical or close open and close, but also in the length and placement of its shadows.

especially when long candlesticks have shown up, the short candlestick can indicate a struggle between buyers and sellers and a likely reversal in the trend, or a slowing down in price momentum.

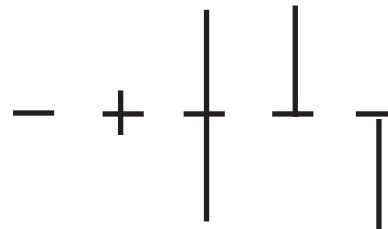
**short candlesticks**

The appearance of a single short candlestick is not meaningful by itself. When a series of short candlesticks sets a pattern, it may show declining momentum in the current trend or be a symptom of sideways movement. The lack of decisive control by either buyers or sellers in such a series may be viewed as showing that the next price movement is not clear and will not be until one side or the other takes control.

**3. Doji sessions.** The session with no real body—one in which open and close are the same—is a very significant development if the session appears at the end of a current trend. Also called a narrow-range day (NRD) in swing trading, the fact that price opens and closes at the same place has even greater significance when the doji also has exceptionally long upper or lower shadows, or both. The longer shadows reveal an attempt by buyers (upper shadow) or sellers (lower shadow) to move price in the desired direction. However, the effort failed when price retreats to close at the same price as the open.

The meaning of the failure on one side or the other, or on both sides, affects how the current trend is

viewed and what it means in terms of likely reversal. For example, when a doji appears at the bottom of a downtrend and also has an exceptionally long lower shadow, it shows that sellers tried to move price lower but could not; this hints at the likely reversal in direction and a coming trend to the upside. If a doji appears at the top of an uptrend and also has a very long upper shadow, the same failed attempt is shown, this time among buyers. This foreshadows a likely reversal and subsequent downtrend.

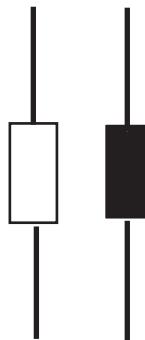
**doji session**

Confirmation is essential to these interpretations, which are only generalizations unless confirmation agrees with the interpretation of the doji session. However, just as long candlesticks indicate exceptional strength on one side of the buyer/seller equation, doji sessions indicate a loss of momentum and, based on the appearance of any shadows, provide strong reversal signals.

**4. Long upper and lower shadows.** One of the most interesting signals in all of candlestick analysis is an exceptionally long shadow appearing on both

sides of the real body. When such shadows are found in both upper and lower realms in comparison to the real body, it shows that neither buyers nor sellers had enough power to move price beyond the opening and closing range. This failure of both sides to control price movement is seen at times as the advent to a period of consolidation. When a candlestick shows up with long shadows on both sides and a current trend has been underway, it most often signals the end of that trend, even though both sides were unable to create more movement.

#### long upper and lower shadows

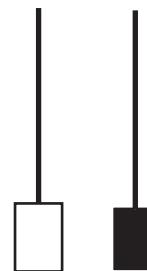


Long shadows both above and below the real body may be better understood when analysis is aided with a study of intraday charts in addition to daily charts. Based on the level of volatility within the session, a trader may conclude that the volatility has little meaning as a reversal signal or that the chaotic nature of the trading day has created an environment

of uncertainty. Clearly, any existing trend will have most likely ended once this candlestick appears; what is not as certain is whether the trend will pause and continue, or fall apart and reverse.

**5. Long upper shadow only.** When a session contains an unusually long upper shadow, it signals that buyers have lost momentum or failed in an effort to take momentum away from sellers. If this pattern unfolds at the top of an uptrend, it is very likely a signal that the trend is about to end. If it shows up within a downtrend, it may confirm or establish continuation; buyers tried to reverse the downtrend, but failed.

#### long upper shadow only



This pattern also works in many two-stick or three-stick candlestick patterns as one of the elements that makes up that pattern. For example, the inverted hammer is a bullish indicator after a long black candlestick and a downside gap, followed by the black or white session with a long upper shadow, a sign that the downtrend is reversing direction. A bearish version follows a long white candlestick, an upside gap,

#### KEY POINT:

When a session includes long upper and lower shadows, it usually means momentum in the current trend is ending. Both sides—buyers and sellers—were unable to move price beyond the real body range.

#### KEY POINT:

A long upper shadow demonstrates that buyers were not able to move price higher. This reveals weak or weakening buyer-driven momentum.

**KEY POINT:**

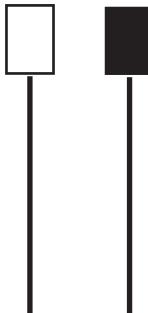
A long lower shadow demonstrates that sellers were not able to move price lower. This reveals weak or weakening seller-driven momentum.

**KEY POINT:**

Not every development forms up as an indicator. To paraphrase Sigmund Freud, sometimes a candlestick is just a candlestick.

and then the inverted session—a smaller session with a long upper shadow, foreshadowing the highest point in the uptrend, to be followed next by a reversal and downtrend.

**6. Long lower shadow only.** The appearance of a candlestick with a long lower shadow has significance opposite of the session with a long upper shadow. It indicates a failure by sellers to move price lower, which leads to the immediate conclusion that either the current downtrend is ending, or an existing uptrend is continuing. However, the pattern can have either a bullish or a bearish interpretation.

**long lower shadow only**

The single session of this shape is either a hammer or a hanging man. The interesting thing about this pattern is that it can be bullish or bearish, depending on where it appears. The real body may also be either white or black, without affecting the interpretation of the session. A hammer appears at the bottom of a downtrend and is recognized as a relatively small real body of either color and an unusually long lower shadow. A hanging man is often the highest point in the uptrend and signals the reversal point. It consists of a small real body of either color and a long lower shadow, signaling the turn of direction and the beginning of a downtrend.

With all forms of candlesticks, “significance” is a matter of content. The importance of a shape or pattern changes based on what occurred before the candlestick, and it may have either reversal or continuation ramifications. Remember, also, that candlestick patterns do not always have to mean anything of interest. In the daily trading pattern, some apparent signals are really not signals at all; this is why confirmation is so important.

# Candlestick Alphabetical Entries

# Candlestick Alphabetical Entries

## KEY POINT:

The abandoned baby pattern is especially descriptive and the name emphasizes its importance. The “abandoned” portion (the doji session) is preceded and followed by gaps, as if it is abandoned on both sides.

**abandoned baby (bear)** a three-day pattern showing up at or near the conclusion of an uptrend, and signaling the probability of trend reversal. The first day is an uptrend candle; the second occurs after an upside gap, and is either a narrow-range day (NRD) or a doji. After the second session, a downward gap occurs, and that gap is larger than the previous gap; the third day is bearish.

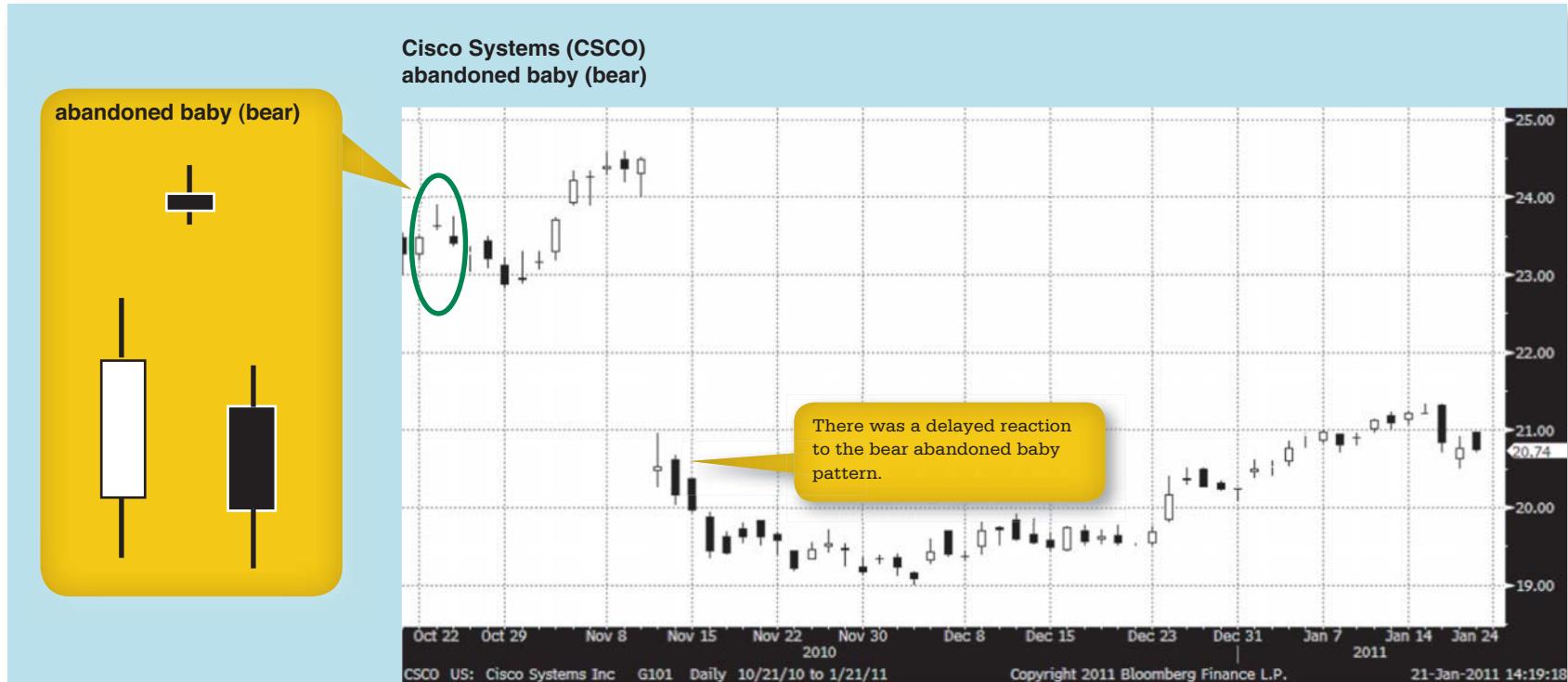
The second day, in which the narrow trading range or outright doji is found, is the key. This narrow trading reveals the end of momentum among buyers. Once the second gap appears and the third, downtrending day develops, the uptrend’s conclusion is clearly noted. Although the abandoned baby pattern is rare compared to other patterns, it is a very strong indicator.

The resulting downtrend will not necessarily be strong or long-lasting. The most dramatic reversal pattern is likely to occur after an uptrend that breaks through resistance with gapping patterns, and then it is reversed with the abandoned baby leading the new trend.

This pattern can also be broken down into the function of each session. The first session identifies the end of the uptrend and is necessary for setting up the abandoned baby, starting with the upside gap. The second session marks the loss of momentum and, possibly, a degree of uncertainty. This is visually represented in the narrow trading range. Reversal is identified by a combination of the downside gap that follows and then the downward-moving session.

Based on the name, it is easy to conclude that the second session, a doji separated from the other two sessions by gaps, is not a part of the trend development. However, it is not the separation that makes the pattern important but the repetitive gaps moving in opposite directions after the indecision between buyers and sellers.

The chart of Cisco Systems (CSCO) shows the bear abandoned baby pattern at the top of the uptrend. There is a delayed reaction, however. The price does not react immediately; more than two weeks later, price gaps down more than four points.



**abandoned baby (bull)** a three-day pattern signaling the conclusion of a downtrend. This is a rare but exceptionally strong indicator consisting of a downtrend candle, a downside gap and then a second day's narrow-range day (NRD) or doji; and then an upside gap larger than the previous gap; and then a final, third day moves upward.

While expectations from this pattern are bullish reversal, the outcome fails about 30 percent of the time. This points out the importance of confirmation as a second stage in acting on this signal. There are three distinct stages in this three-session indicator. The first session is the final one in the current downtrend. The downward gap and doji or NRD signals loss of momentum among sellers and overall uncertainty. The final upside gap and white candlestick signals that the downtrend has ended. The double gap, the second moving in the opposite direction of the first, is a strong sign that reversal is legitimate.

The second day may also be viewed as a pause, a session in which sellers lose their control and momentum, leading to a takeover by buyers on the following session.

The first two sessions by themselves form a bullish doji star, a fairly strong reversal signal. The bullish abandoned baby can be considered a bullish doji star with a confirmation sign in the gap and third, upward session.

For example, the chart of Home Depot (HD) shows the bull abandoned baby pattern at the bottom of the downtrend. It is confirmed by the long white candlestick that follows, an additional strong uptrend signal. The abandoned baby followed a period of sideways movement and a short-lived downtrend. However, the subsequent uptrend that followed broke through the previously established resistance at \$32, and set new support at \$34. The second session in the abandoned baby was not a doji, but was a very-narrow-range day, which met the criteria of the abandoned baby.

If that session is not considered a narrow-range day, it may also be viewed as an inverted hammer, which by itself is a strongly bullish indicator. So whether the pattern is viewed as a bullish abandoned baby, a confirmed doji star, or gaps surrounding an inverted hammer, all of these are bullish. Subsequent price movement confirmed that any or all of these interpretations were correct.



**KEY POINT:**

The advance block is very similar to the white soldiers pattern with a notable exception: The second and third sessions of the advance block contain long upper shadows.

**advance block** a three-stick pattern consisting of white sessions, each one closing progressively higher than the last. It is very similar to the white soldiers pattern, with a notable exception: The second and third sessions include long upper shadows.

Each session opens within the body of the previous session and then moves higher. The long upper shadows are supposed to signify that this pattern is not bullish at all, but bearish. The failure of buyers to move price higher than the close implies a loss of momentum. However, it turns out to be a bullish continuation pattern more than half the time. In spite of the long upper shadows, price continues upward during the three sessions.

An example is found near the end of the three-month chart of FedEx (FDX). The upper shadows expand with each developing session, distinguishing this from the white soldiers, which typically contains equal or smaller shadows above and below the real bodies.

This example was followed by a brief decline in price, down eight points before a rally back up to the higher levels seen on the figure. The volatility of FDX following the period shown makes the advance block an inconclusive indicator. It is not reliable in any circumstance. Because it serves as a bull continuation most of the time and a bear reversal for the remainder, acting on an indicator such as this demands confirmation. The immediate price action after it appeared was bearish, lasting for the remaining four sessions. This could be seen as confirmation; however, after a period of sideways movement, price tested both support and resistance for several months with no clear domination by either buyers or sellers. Even indicators like the Relative Strength Index (RSI) and Moving Average Convergence/Divergence (MACD) remained unclear and set up no useable confirming strength or momentum.



## KEY POINT:

At first glance, the belt hold does not seem especially important. But the real key to understanding the belt hold is the invisible gap that forms between the two sessions. This gap, combined with the reversal in direction, makes the belt hold an important reversal signal.

### belt hold (bear)

alternatively called the black opening shaven head or shaven top, a two-session pattern that appears during or at the top of an uptrend. After a series of upward-moving sessions, a final white stick appears; next, a black candlestick forms the second day of the bear belt hold. The close of the last white session and the open of the second black session is a hidden gap (one not visible immediately because the two sessions' real bodies overlap). This signals the beginning of a reversal and downtrend.

The belt hold appears frequently and may be a failed reversal; for this reason, confirmation of the bear belt hold is recommended to ensure that timing for closing a current position and opening a new one is reliable. The belt hold may also act as a confirmation of reversal signaled in other ways.

This is a reliable signal. It leads to reversal in over two-thirds of appearances, which is quite high. However, the trend following reversal may not be long-lasting or strong; in other words, the belt hold usually leads to reversal, but it does not guarantee the momentum level within that new trend. However, if the reversal includes

repetitive gapping price patterns or a breakout below support, these confirm not only the reversal but the momentum of the new bearish trend as well.

In the instances where reversal does not occur, or when the pattern appears within a downtrend rather than at the end of an uptrend, it serves as a reliable continuation pattern of the uptrend.

The chart for Hewlett-Packard (HPQ) shows an example of the bear reversal in the form of a belt hold. The reversal is signaled on November 8 on this chart. It had been predicted in the two preceding sessions, which were both reversal days and narrow-range days (NRDs), strong indicators by themselves. The belt hold actually confirms the end of the uptrend in this instance. A strong downtrend of seven sessions followed and a subsequent bull reversal was signaled at the bottom of the downtrend with the appearance of a bull harami (the two-day pattern consisting of the black session followed by a white session with lower high and higher low).

On this chart, clear reversals were shown at the top of the uptrend (bear belt hold) and also at the bottom of the downtrend (bull harami).



**belt hold (bull)**

also called the white opening shaven bottom, a two-session indicator appearing at the bottom of a downtrend and signaling likely reversal. After a final black candlestick appears in the current trend, it is followed by a reversal session white candlestick, and this forms the second leg of the bullish belt hold.

This indicator is seen often during a trend rather than at its end and may end up as a failed reversal. Accordingly, confirmation is essential before acting on the appearance of the belt hold. In addition to serving as a primary reversal signal, the belt hold may also be confirmation of reversal indicators introduced by other candlesticks or by other technical signs such as tests of support, gapping price movement, double bottom, or inverse head-and-shoulders patterning. The bullish belt hold leads to reversal in nearly three out of four situations.

Even following a clear trend reversal, there is no assurance that the new trend will be strong. Candlestick

patterns signal changes, but even when they succeed, the subsequent trend does not act in a particular manner based on the indicator itself. Momentum has to be confirmed independently through further candlestick formations as well as oscillators and longer-term trend changes.

The chart for 3M (MMM) provides a good example of a bull belt hold, as seen in the highlighted two sessions. Although it appeared only after two downward-moving sessions, the belt hold remained a strong reversal signal; subsequent trading proved this out. The upward gap that appeared a few sessions earlier was quickly reversed and filled by the short downtrend, and the bullish belt hold marked the end of this price adjustment. The second day of the belt hold, on December 8, also provided the last entry in a double bottom test of support. In this regard, the belt hold confirmed the double bottom, providing strong indication that prices would be heading upward.



**KEY POINT:**

The strongest position for the black crows indicator is after an especially strong uptrend. The reversal beginning with black crows may also involve more than three sessions.

**black crows** (also called three black crows) a series of black candlesticks progressively descending. Each session's opening is lower than the previous open, and each session's close is lower than the previous close. Each also opens within the range of the previous day's real body. This is a strong bearish indicator.

To provide reliable reversal indication, the black crows pattern is strongest after a substantial uptrend. If that uptrend included price gaps, the strength of the black crows reversal is quite compelling. To meet the criteria for this pattern, at least three sessions must occur, although it is possible that a black crows pattern will involve more than three. Black crows confirm that the security is overbought and due for a correction or retreat from the high of the range. The new pattern may begin with the first black session closing below the opening of the previous day; this is the strongest version of the black crows. The second and third sessions open above the prior close, but then close lower.

Reliability depends on context. This includes the strength of the uptrend, the proximity of the first black session to the close of the previous white session (closing lower is stronger), and the number of black crow sessions (three is the minimum, and more makes the pattern stronger). Another judgment criterion is the length of each black candlestick. The longer each downward session, the more momentum on the side of sellers. However, consistently long black sessions may also indicate the opposite effect of the previous trend, possible

oversold conditions in the immediate future, leading to a possible whipsaw effect. When the candlesticks within black crows also exhibit little or no lower shadow and when volume grows with each session, additional momentum builds on the sellers' side.

The chart of Wal-Mart (WMT) includes three examples of black crows. These each precede short but clear downtrends. Although the occurrence of three black crow patterns in one three-month chart is not common, the pattern does appear frequently. Wal-Mart's black crows are not perfect even though they define the downturns they initiate. The first case includes a price gap between sessions one and two, for example, and all three sessions have long lower shadows. This hints at a weak downtrend or possible failed signal. The subsequent price movement is uncertain as a result. The second black crows pattern is a better example and includes four sessions, but the lower shadow status is inconsistent. The final is the strongest example of the three, notably because the lower shadows are smaller than the preceding indicators.

In this example, one of the oddities of the bearish pattern is the repetitive multiple-session downtrends, if only because by the end of the charted period the trend is clearly upward. The support at \$53.50 held strongly and the single breakthrough reversed quickly. Even with the black crows patterns showing up three times, the strength of support is a better indicator that longer-term direction was bullish, not bearish.



**KEY POINT:**

The breakaway is among the most unusual of candlestick indicators. It involves at least five sessions, when most indicators contain three or less. A tendency to ignore the first four and focus only on the long candlestick in the final position may cause some analysts to miss this fairly rare pattern.

**breakaway pattern (bear)** a multisession indicator of five days or more. It has important features. The first day is a long white candlestick as part of an ongoing uptrend. This is followed by a gap and then a second, third, and fourth day. They are all upward-moving (white) candlesticks. The fifth and last session is a long black candlestick. This is the end of the uptrend and a reversal to start a new downtrend.

The next figure shows how the bearish breakaway pattern develops. The all-important gap between sessions one and two, and the long candlesticks in both the first session (white) and the last session (black) demonstrate a complete shift in momentum, from buyers over to sellers.

Although this five-session pattern will not be found often, it is a fairly strong bearish signal. The outcome does turn downward in more than half of all instances. A problem with recognition is based on the oddity of a five-session indicator, of which the first four candlesticks are white. It appears quite bullish until the final session. Even so, that single turning session when the pattern develops as a breakaway is quite strong. The

long candlesticks in positions one and five frame the indicator and provide the key features to look for; however, this is easy to miss. A chartist may restrict analysis to one-, two-, and three-session indicators, which are the majority of reversals, meaning the breakaway will not be as easy to spot.

An example of this pattern is seen in the chart for FedEx (FDX). This contains all of the required elements of a bearish breakaway pattern. The resulting downtrend proves the point, even though it is short-lived.

In this case, the breakaway was not perfect. The first position was not a long candlestick, so the overall development fits the description only to a degree. The resulting turn lasted only five sessions before the doji reversal appeared, signaling yet another turn and resulting uptrend. Many candlestick indicators are like this: They accurately predict a reversal against a short-term trend, resulting in yet another short-term trend. It demonstrates that patterns like the breakaway are valuable for timing of short-term entry and exit within a swing trading system, but that they may not be as reliable for longer hold periods.



**breakaway pattern (bull)** a reversal from the existing downtrend to a new uptrend, involving at least five sessions. The first day is a long black candle, followed by a downside gap and then three or more black sessions. The final session is a long white candlestick. This reversal also marks the complete change in momentum from sellers (long black session) over to buyers (long white session).

The important features in this pattern are the long candlesticks in the first and last positions, and the downward gap between sessions one and two. Although the majority of sessions are black (thus looking like a continuation of the existing downtrend), the final white session is the critical turn. It is not easy to spot, because analysis of short-term reversals tends to be limited to indicators of three or fewer sessions.

The bullish breakaway pattern is summarized in the chart. The long beginning and ending sessions and the marked price gap between sessions one and two are the key features.

McDonald's (MCD) reported a strong bullish breakaway pattern. It involved 10 sessions rather than five, but

the pattern is the important aspect here, and not the precise number of sessions involved. The turnaround was fast and strong. The large downside gap between sessions one and two was the first sign that price might be adjusting too rapidly to sustain the downtrend. An astute chartist may have suspected some upward gap filling in this case, but instead price levels continued to decline. This may have seemed like a continuation until the final, white candlestick appeared.

An analyst might view this chart differently than as one revealing a bull breakaway pattern. The lone white candlestick session that ends the indicator could be treated as a single reversal day at the end of a downtrend lasting nearly six weeks. That single long white candlestick was bullish all by itself. However, a modified interpretation may conclude that the bullish breakaway was confirmed by the upward price gap following the final long white candlestick (or that the one-session indicator in the long white was also confirmed in the same way). When conflicting indicators both reveal the same reversal, it also serves as a form of confirmation, even if a secondary indicator represents a portion of the first one.



**KEY POINT:**

The concealing baby swallow is a paradox. Although it contains all black sessions, it is a bullish indicator.

**concealing baby swallow** a rare bullish pattern involving four sessions. All sessions are black. The pattern is characterized by two black marubozu sessions (days with little or no shadows) in the first two days, the second opening and closing lower than the first. The third day occurs after a downward gap and appears as a black candlestick with an upper shadow. The fourth and final session is also black and completely engulfs the third (it opens below and closes above the range of day three). The pattern looks like the summarized version in the illustration.

This is a rare pattern because all four sessions are black, and yet it is a bullish reversal indicator. A majority of bullish reversals would be likely to contain one or more white candlesticks. However, the two long black candlesticks in sessions one and two, followed by the downward gap and then a two-session development in which the third session is engulfed entirely by the fourth, make this a special case. It is going to be found during a current downtrend. As with many multi-session indicators, the ideal combination of criteria will not always exist. However, the overall indication itself may be reliable when a pattern generally fits the description of a pattern like the concealing baby swallow. These include the apparent continuation of the downtrend in the long black sessions (one and two), confirmed by the downward gap

that follows. The uncertainty enters when the final session engulfs the third session.

In its strongest possible version, several developments are combined. These include consecutive long black sessions (preferably marubozu days); the downside gap; an inverted hammer in the third session (desirable to point to bullish reversal, but not an absolute requirement); and finally, the engulfing pattern between sessions three and four.

The pattern should be used with caution because it is not a reliable bullish reversal. This is true because not all of the elements are going to be present in every instance of a concealing baby swallow, and a failed signal is more likely. It will be followed by a continuing bear trend 75 percent of the time rather than reversal.

An example appears in the chart of Walt Disney (DIS). It meets nearly all of the criteria. The first session is a long black candlestick but not a true marubozu; the second is a marubozu. The third session follows the requisite gap but has a lower shadow in addition to the upper. The fourth and final session engulfs the body of the third session but does not engulf the extension of the shadows. So while this is close to the concealing baby swallow, it is not perfect. The pattern is very rare, and traders will not find it often. However, it does lead to an uptrend after a period of sideways price movement.



**KEY POINT:**

The counterattack lines is a strong reversal for two reasons. First, the closing prices of each session are the same, and second, the color of each changes, forming a hidden gap. The hidden gap and directional change are very strong clues.

**counterattack lines (bear)** also called a meeting lines pattern, a two-session pattern in which the two days have the same closing price, but are of opposite colors. The first session is white, and the second session is black.

The closing prices are identical; however, the pattern forms a hidden gap between session 1's close and session 2's open. This is a fairly rare reversal signal, and not the strongest among the "lines" type of patterns. It is found at or near the end of a bullish trend and is a strong reversal due to the consecutive but opposite-moving long candlesticks. The strong bearish indication is in the hidden gap between the two sessions. Although they close at the same level, the second, black session gaps above the close of the first and then retreats back to the same level. The inability of buyers to exploit the gap reveals that momentum has gone over to the sellers.

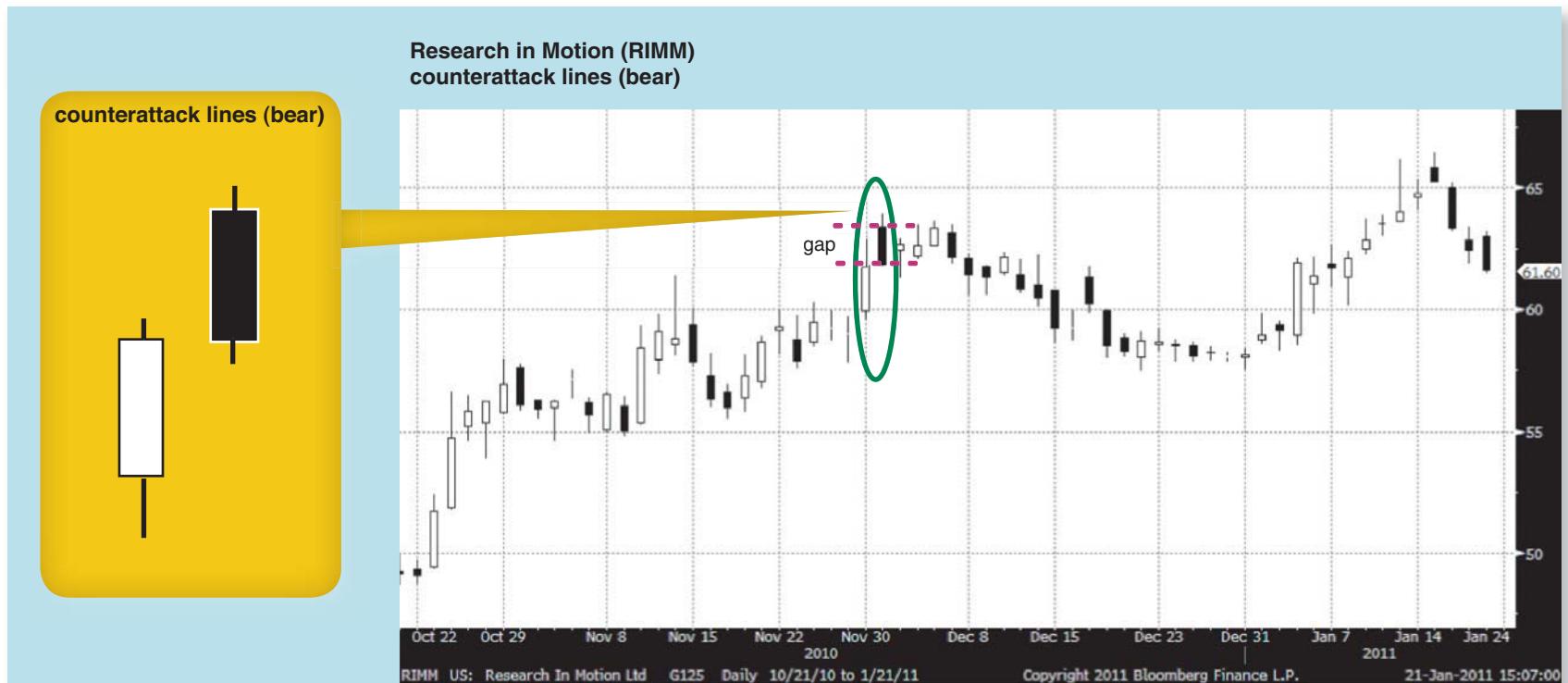
In order for this indicator to be valid, it has to appear after an uptrend has been established. The longer

the set-up day (first session) and the larger the gap, the more reliable the reversal indication.

The sudden shift in momentum is significant. As the first session develops as a long white candlestick, it might appear as a continuation signal of the uptrend. However, because the gap and second downward day ending at the same close contradict this, it is immediately clear that buyer momentum has evaporated. It is important, however, to wait for confirmation before taking bearish action.

For example, the chart of Research in Motion (RIMM) shows a bearish counterattack lines pattern starting with a fairly strong white session and a moderate gap. This is followed by a one-month downtrend.

Confirmation that the counterattack lines represents a true reversal was found in the session immediately following the two-session signal. A hanging man appeared with a minor upper shadow but the requisite small real body and longer lower shadow. After this confirmation, price levels declined steadily until December 31.



## DEFINITION: **SPDR**

SPDR is an abbreviation of Standard & Poor's Depository Receipt, one of the first of exchange-traded funds (ETFs). A depository receipt is a negotiable certificate traded in place of other forms of equity or debt.

**counterattack lines (bull)** a two-session indicator in which the closing price of both sessions is the same but the colors and direction are opposite.

The bullish counterattack lines pattern is valid only if it appears after a downtrend. The first session is black and the second is white. A hidden gap is formed between the close of the first session and the open of the second, as shown in the illustration.

The hidden gap between the two sessions (represented by the opening of the second session below the close of the first) makes the reversal strong, since the downward gap is followed by the upward movement to the same price as the previous session's close. It indicates a loss on seller momentum and immediate replacement by strong bullish sentiment.

The longer the black candlestick and the wider the gap, the stronger the indication. This is a rare signal and not always a strong one. Also called the meeting lines, it appears occasionally and may be useful if confirmed independently.

An example is found in the chart of **SPDR** Gold Shares (GLD). In this instance, both the size of the black candle and the gap are modest; the uptrend that follows is quite strong, but brief.

There were many forms of bullish confirmation in this example. First was the two-session upside gap appearing immediately after the counterattack lines. Second was the unusually long lower shadow on the black candlestick a few sessions later. This attempt by sellers to move the price downward failed and was followed by a final confirmation, the very large upside gap. Considerable volatility followed, including the white soldiers and then the exceptionally long black session and down-trend.

The volatility of this chart demonstrates that counterattack lines may be quite strong as reversal indicators, but that reversal itself is likely to lead to short-term trends and not to intermediate or enduring changes in the trading range.



**KEY POINT:**

Deliberation is unusual because it consists of three candlesticks indicating opposite movement (three white in the bear or three black in the bull). However, deliberation is more often going to work as a continuation indicator than the reversal it is supposed to provide.

**deliberation (bear)** a three-session pattern representing lost momentum in the current trend, indicating a coming reversal. Deliberation can occur at any point, but when it is seen at the top of an uptrend, it holds the greatest significance.

The pattern consists of three white candles. The second extends higher than the first. The third appears after an upside gap and it is a smaller range session than the previous two, as shown on the chart. Immediate expectation is for price to reverse and fill the gap and then head downward.

This pattern is unusual in the sense that when properly placed (at the top of an uptrend), it is bearish but it consists of three white sessions. A majority of bearish signals contain black candlesticks. When it appears within a downtrend or without clear confirmation, it is

not reliable as a bear reversal. Contradicting the indicated significance of this pattern as a bear reversal, it turns out to be a bull continuation pattern about three out of four times it is found. The gap found between the second and third sessions is viewed by analysts as a “last gasp”: in the uptrend and when this does reverse, it makes the case. However, the gap is not always a turning signal.

The pattern is most reliable as a bear reversal only when it appears at the end of a strong uptrend. For example, the chart for Merck (MRK) starts out looking like an uptrend after a period of gradually rising price levels. The gap between sessions two and three is a warning signal. Three sessions later, a strong downtrend with a large gap demonstrates that deliberation can provide a strong indicator of reversal. This is one of those cases in which deliberation did lead to a reversal.



## KEY POINT:

In order for the bull deliberation to work as a reversal, four elements have to be present:

- First, it has to show up at the bottom of a downtrend.
- Second, the first session has to be a long black candlestick.
- Third, there must be a downside gap between sessions two and three.
- Fourth, the second and third sessions should have long lower shadows.

**deliberation (bull)** a three-session pattern representing lost momentum among sellers, and possibly a signal that upside reversal is about to occur. This pattern may appear at any point in a trend, but it is at its strongest after a period of downward price movement.

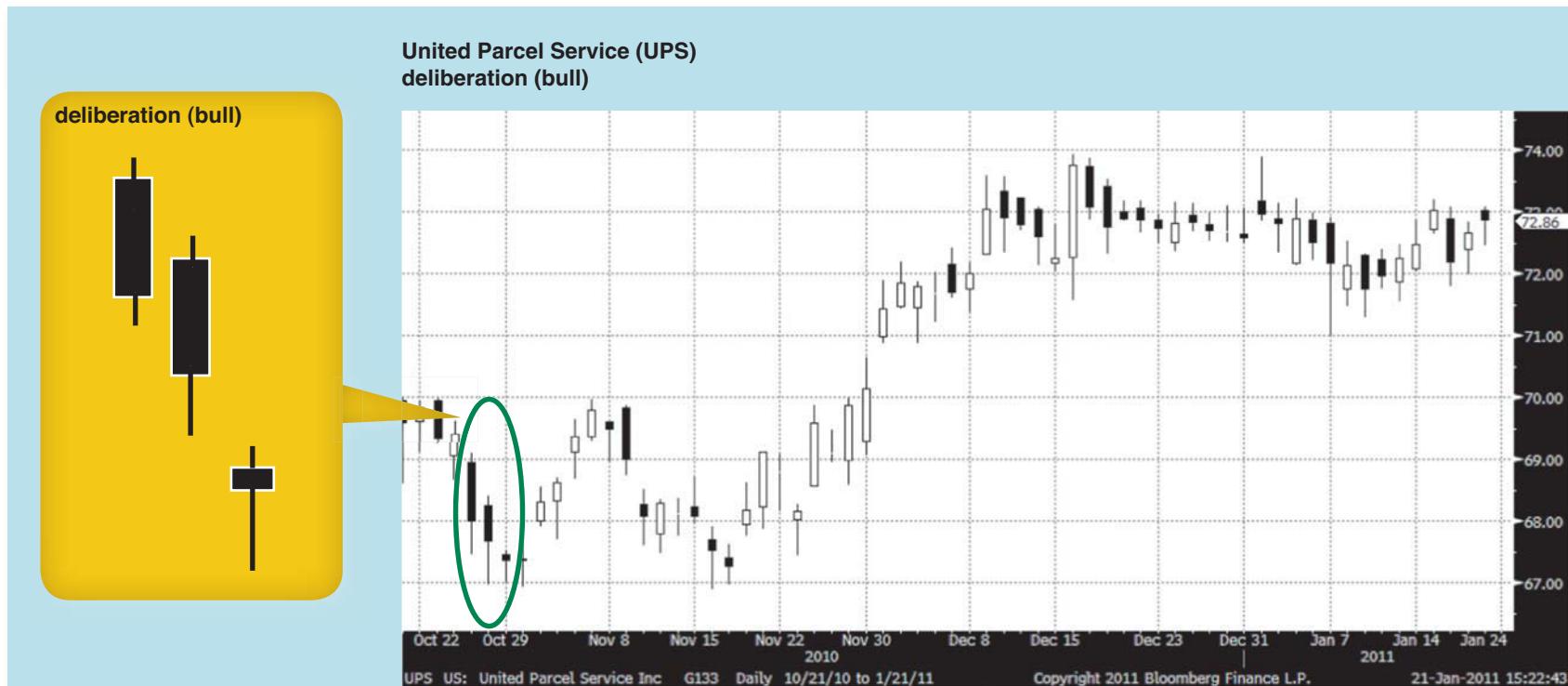
It consists of three black candlesticks, making it an unusual form of bullish indicator. The second is lower than the range of the first. This is followed by a downward gap and then a lower third session. The price is expected to then turn upward to fill the gap and begin price movement in that direction.

Although the signs point to lost momentum among the bears, it is not a reliable signal. The pattern looks a lot like black crows (three consecutive, declining black candlesticks) and, in fact, it most often acts

like a bear signal (about three-fourths of the times it appears).

The lower shadows in the last two sessions are the clues to the bullish reversal. This shows that sellers were not able to bring prices lower. However, the pattern is not completely reliable; it is difficult to make a clear distinction between the bull reversal of a deliberation pattern and the bear continuation of the black crows.

The chart of United Parcel Service (UPS) is a good example of this pattern working as a bull reversal. The likely upward movement does not occur immediately, but the doji in the next session confirms the bottom of the downtrend. The uptrend then follows, reverses, and resumes two weeks later. This hesitation in the direction and strength of a trend is not unusual, and delayed reaction is likely to be as common as prompt trend reversal.



**KEY POINT:**

The descent block is bullish even though it is composed of three black, descending patterns. Some mistake it for the black crows; however, this pattern includes long lower shadows.

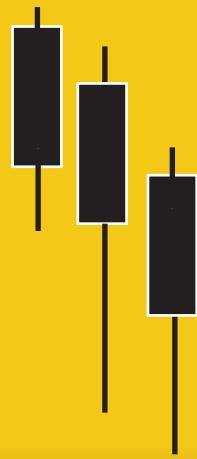
**descent block**

a three-session pattern expected to signal a bullish reversal. It is unusual in the sense that it consists of three black sessions, each one descending lower than the preceding one. It resembles a black crows pattern, a strong bearish signal. The distinction between the two is found in the lower shadows. Similar to the bull deliberation, the descent block also has the downward-moving sessions and long lower shadows, but it lacks the gap between sessions two and three. The descent block is made up of sessions on the decline and opening within the body of the preceding day.

The long lower shadow provides the clue that this may not be a black crows signal, but a bull reversal. The

longer the existing downtrend, the stronger the descent block works as a bullish reversal. In the black crows, the sequence appears at the top of an uptrend as a bearish reversal or within the downtrend as a continuation signal. The descent block is distinguished from the black crows by the long lower shadow, indicating that the bears are running out of momentum.

For example, Apple (AAPL) revealed a descent block after a short downtrend. It would have been a stronger signal if the downtrend had lasted longer; however, this reversal did lead to a sustained uptrend lasting a full month.

**Apple (AAPL)  
descent block****descent block**

The brevity of the downtrend made this descent block weak as well.



**KEY POINT:**

The diamond pattern is a combined form of expanding and contracting triangles or wedges. It may form up over only a few sessions or can last for weeks.

**diamond bottom**

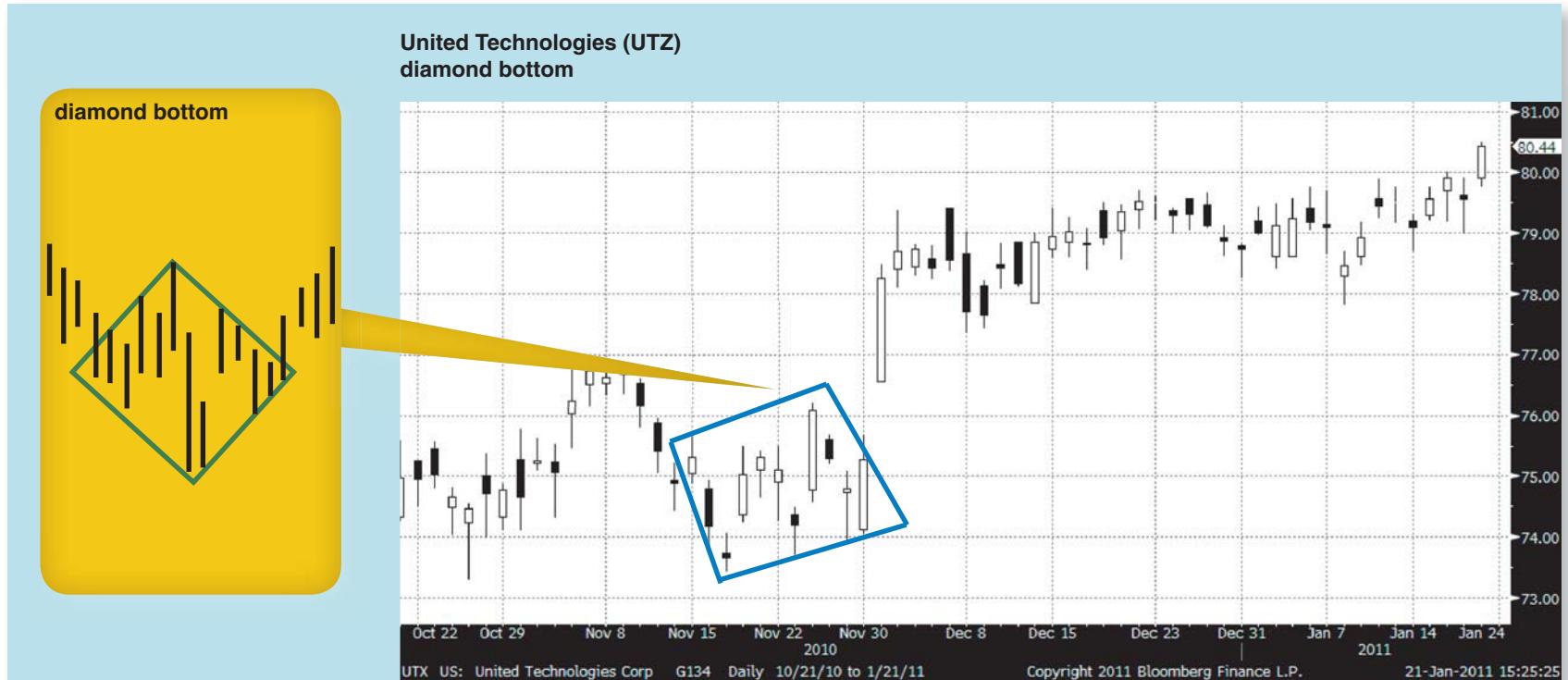
a bullish sign that shows up after a price dip, and anticipates reversal to the upside. It describes the shapes of a multi-session valley, either after an uptrend or as the culmination of a downtrend. The indicator often is accompanied by higher than usual levels of volume.

The shape of the pattern is caused by a series of sessions with one of two characteristics. Either the sessions are expanding into higher highs and higher lows and then narrowing, or the session ranges bounce from a higher to a lower level, also followed by a narrowing effect and then price movement to the upside.

The duration of a diamond bottom may appear over a series of sessions lasting only a few days, or could take weeks or even months and represent a longer-term

pattern of reversal. The broadening of the trading range during the indicator is a key. This consists not only of the range between opening and closing prices, but of the entire extension of trading range including upper and lower shadows. This broadening and the resulting higher highs and higher lows concludes when prices break out of the diamond pattern and begin moving upward.

For example, United Technologies (UTZ) displayed a version of this pattern at the bottom of its downtrend before reversing and gapping upward. The pattern displayed considerable volatility within the diamond as price levels moved back and forth before the upside breakout. This met the description in terms of placement within the trend. Every diamond formation will appear slightly different.



**diamond top**

a bearish formation involving many sessions and appearing at or near the top of an uptrend. It anticipates a reversal to the downside or resumption of a larger downtrend after a spiking of prices. The overall pattern is made up of a peak in the price trend, shaped by expanding daily ranges and then a shrinking effect before the price moves downward. Higher than usual volume levels may occur at the same time.

An alternative to expanding daily ranges may be a “bouncing” effect in which one session approaches the top of the diamond, and the next gaps down to the bottom. After this trend expands to form the diamond’s peak, it then contracts.

Alcoa (AA) revealed this pattern at the top of an uptrend. The downtrend that followed was short-lived and weak, but the diamond top appeared and forecast the move. The degree of momentum occurring as a result of the diamond formation is not as reliable as it is following many reversal indicators. The duration of the diamond itself often serves as a correlation of the strength of the reversal that follows. So a lengthy diamond formation may appear before a strong reversal, and a short-duration diamond like the one in this chart reveals the greater likelihood of a short or weak downtrend.



**KEY POINT:**

Is a doji a bear or bull signal? It all depends on the features of the specific doji (upper or lower shadows and length of shadows) as well as on the placement of the doji within the trend.

**doji (bear)** also called a gravestone doji, a session with a large upper shadow and little or no lower shadow. The real body has little or no distance between opening and closing price. The horizontal line replaces the normal candlestick rectangle and appears at or very close to the bottom of the trading range.

This is a signal that buyers attempted to push price above the opening, but failed. The price retreated during the session to the same level as the opening, where it also closed. This is bearish because it signals that buyers did not have enough momentum to move the price higher.

A doji like this appeared at the top of an uptrend in Sears Holdings (SHLD). The perfect doji has no real body and is only a horizontal line; however, this very narrow range fits the definition of a bear doji because of the unusually long upper shadow. The subsequent downward price movement confirms the indication. In this case, the real body was very close to a doji; the important element of the formation is that the distance between opening and closing price was quite small. When a real body does form, the color does not matter, since it is the failed upper shadow that signals reversal.



**doji (bull)** also called the dragonfly doji, a session with little or no distance between opening and closing price. When it appears at the bottom of a downtrend, it predicts reversal. The session consists of a horizontal line or very small real body and a longer than average lower shadow.

The lower shadow reveals a failed attempt by sellers to move the price lower. The extension did not hold, and the price rose to close at or near the opening. The expectation is for an uptrend to follow.

The Deere (DE) chart shows a doji followed by an uptrend that tested resistance and then retreated.

However, a second uptrend did break through. In this case, the bull doji anticipated the price move, but not before a weak attempt failed. However, by November 15, the subsequent retreat once again turned, marked by the near-doji session with another long lower shadow. This was followed by two weeks of sideways movement, and then by November 30 another session with a narrow range and a lower shadow, and after that a strong uptrend began and continued to the end of the period shown.



**KEY POINT:**

Northern and southern doji indicators are not reliable ones to act on. About half of the time, they act as reversals, and the other half as continuation signals. In other words, these are random unless used as confirmation of indicators with greater reliability.

**doji (northern)**

a doji appearing after a series of upward moving sessions. It is supposed to act as a bearish reversal signal, but approximately half of the time it acts as a bullish continuation.

Based on the uncertainty of its meaning, when the northern doji appears, it cannot be reliably interpreted without independent confirmation. It consists of a doji showing up after three or more sessions of an uptrend. The preceding sessions show price moving higher, although the color of those sessions may be either white or black.

The random nature of this pattern (either bearish reversal or bullish continuation) makes it unreliable as a signal for either. When this appears at the top of an exceptionally strong or long-lasting uptrend, reversal may be slightly more likely; when it appears near the beginning of a new uptrend, it could indicate that continuation is

more likely. This pattern should be studied in the context of where it appears, and traders should keep in mind the recent price performance of the stock. Before acting on what it reveals, independent confirmation is required.

An example is the chart for General Electric (GE). The doji shows up at the end of several white candlestick sessions. In this instance, it turns out to work as a bullish continuation signal. The doji, often viewed as a reversal sign on its own, does not always provide the expected result; in fact, doji sessions occur so often that they must be treated as a leg in a more reliable indicator, or as a clue that has to be confirmed. Much depends on the size of the upper shadow. The longer the shadow, the more difficulty bulls have in moving the price and the more likely it will reverse. This example includes a modest upper shadow and there were no clear indicators of bearish change in the pattern.



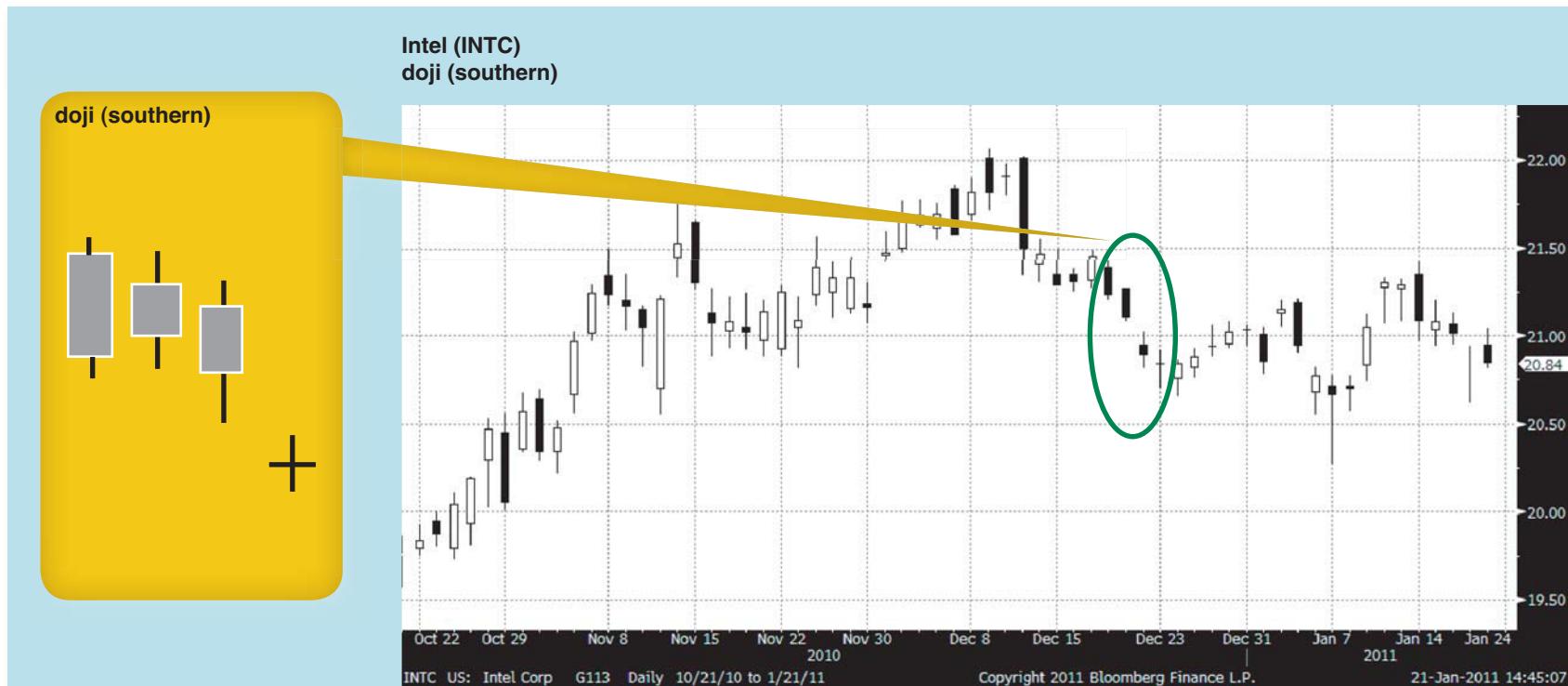
**doji (southern)**

a formation in which a doji appears after three or more downward moving sessions. This may be a bullish reversal signal; however, approximately half of the time it is found, the southern doji often becomes a bearish continuation signal instead. The preceding sessions may be either white or black.

By itself, the southern doji does not provide any reliable clues concerning its nature as reversal or continuation. However, the longer the lower shadow, the more likely it is that the southern doji will lead into a reversal. The failure of sellers to move price lower works as a signal of lost momentum. This is the only strong signal within the southern doji itself. Given the southern doji's random nature, independent confirmation must be found before

taking action on the indicator. Context matters as well. If this indicator appears after a long downtrend, especially one with gapping price movement in preceding days, reversal is somewhat more likely.

The next illustration, the chart for Intel (INTC), has a very clear southern doji at the point of the down-trend consisting of three sessions. Subsequent price movement neither reverses nor continues downward, but moves into a period of sideways movement. This example shows that the southern doji (like the northern version) is not as strong or reliable as many other candlestick formations. It is most effective when used as a two-step confirmation including separate signals.



**KEY POINT:**

A doji star is a matter of gapping action and the appearance of a doji. However, even with the gap as a strong clue, neither bear nor bull versions of this indicator are particularly reliable.

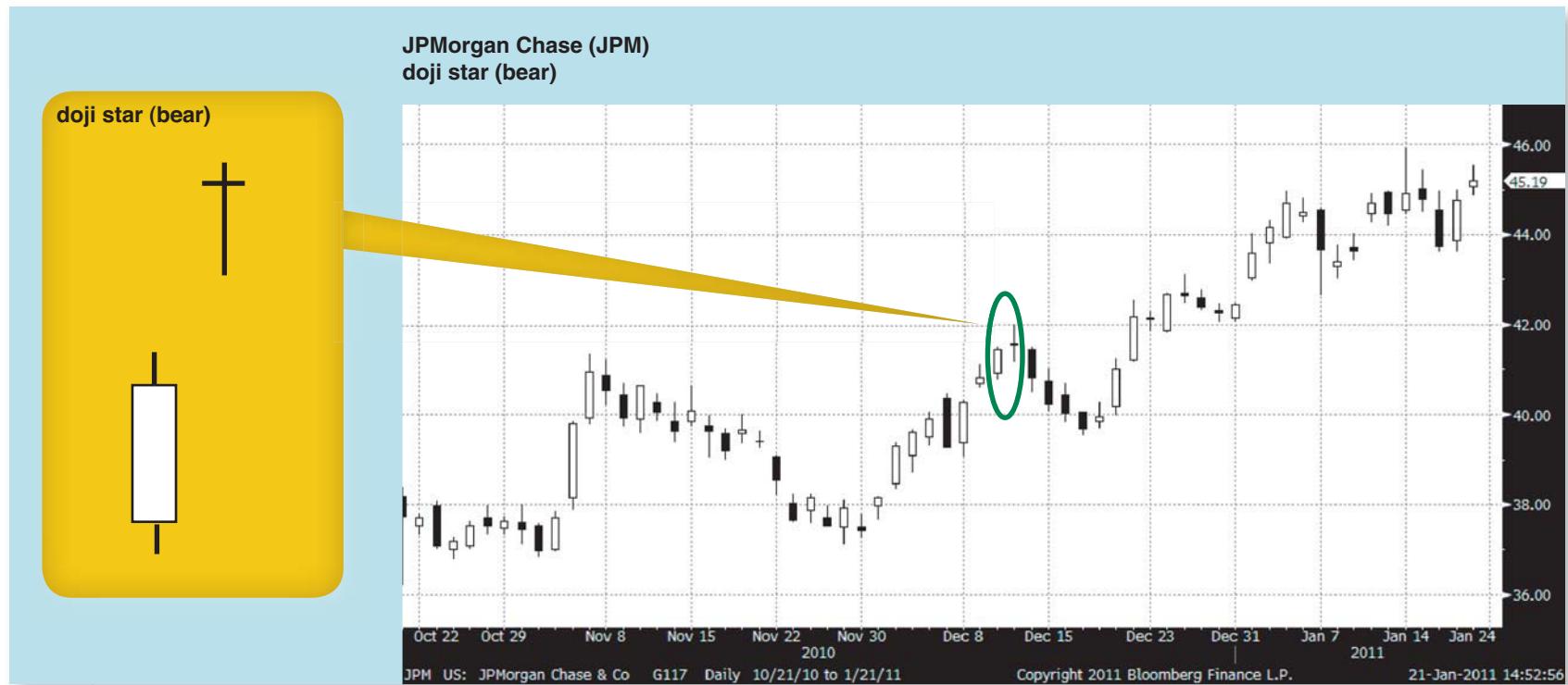
**doji star (bear)**

also called the evening doji star, a two-stick pattern signaling likely reversal when it is found at the top of an uptrend. It consists of a white session, an upward gap, and then a doji. Expectation is for the price to then reverse and fill, and head downward.

This is a reliable and strong reversal indicator. Confirmation is found in what happens in the sessions that follow. In order for the doji star to serve as valid reversal, price must follow through as expected. Confirmation may also be found with Western signals, such as a test of resistance that fails and then reverses.

JP Morgan Chase (JPM) provides an example of a typical bear doji star. It showed up at the conclusion of

a strong uptrend and was followed by a short down-trend, before the uptrend continued. Confirmation was found in at least two ways. First, when the two-session doji star is viewed with the next black candle, the three form a classic bear abandoned baby pattern, another strong reversal signal. Second, the doji star also represents a breakout above resistance that retreats back into the trading range immediately. When this occurs, a downtrend is expected. In the case of JPM, the down-trend was short. Four sessions later, price moved up once again, and this time the breakout held as a new, strong uptrend followed.



**doji star (bull)** a two-stick signal appearing at or near the bottom of a downtrend and signaling a coming price reversal. It consists of a black candlestick, a downward gap, and a doji. After this, price is expected to rise and fill the gap and mark the beginning of an uptrend.

This is not an especially reliable pattern. Although it is expected to signal a bull reversal, it acts as a bear continuation about two-thirds of the time. This may be at its strongest for likely reversal when it occurs at the same time as a failed breakout below support and as the final stage of a double bottom or inverse head-and-shoulders pattern. When the bullish doji star appears within an existing trend nowhere near support, it is a dubious signal.

Procter & Gamble (PG) revealed in its chart how the bullish doji star appears. Note the one-session delay

before price moved upward. The first white session confirmed reversal with its exceptionally long lower shadow. This showed that sellers tried to continue the downward price trend below newly set support, but failed. The price level returned to the range and moved upward in the session, marking the beginning of the uptrend anticipated by the bullish doji star. The uptrend lasted for 10 sessions (moving beyond the chart shown), and then gapped strongly downward. This cautionary example makes the point that even when the indicators are correct, you cannot know how long a new trend will last. The price trend occurred during a period when it looked like new support was being set, but later price movement revealed that it did not hold. The longer-term picture was bearish in spite of the short-term uptrend that followed the doji star.



**KEY POINT:**

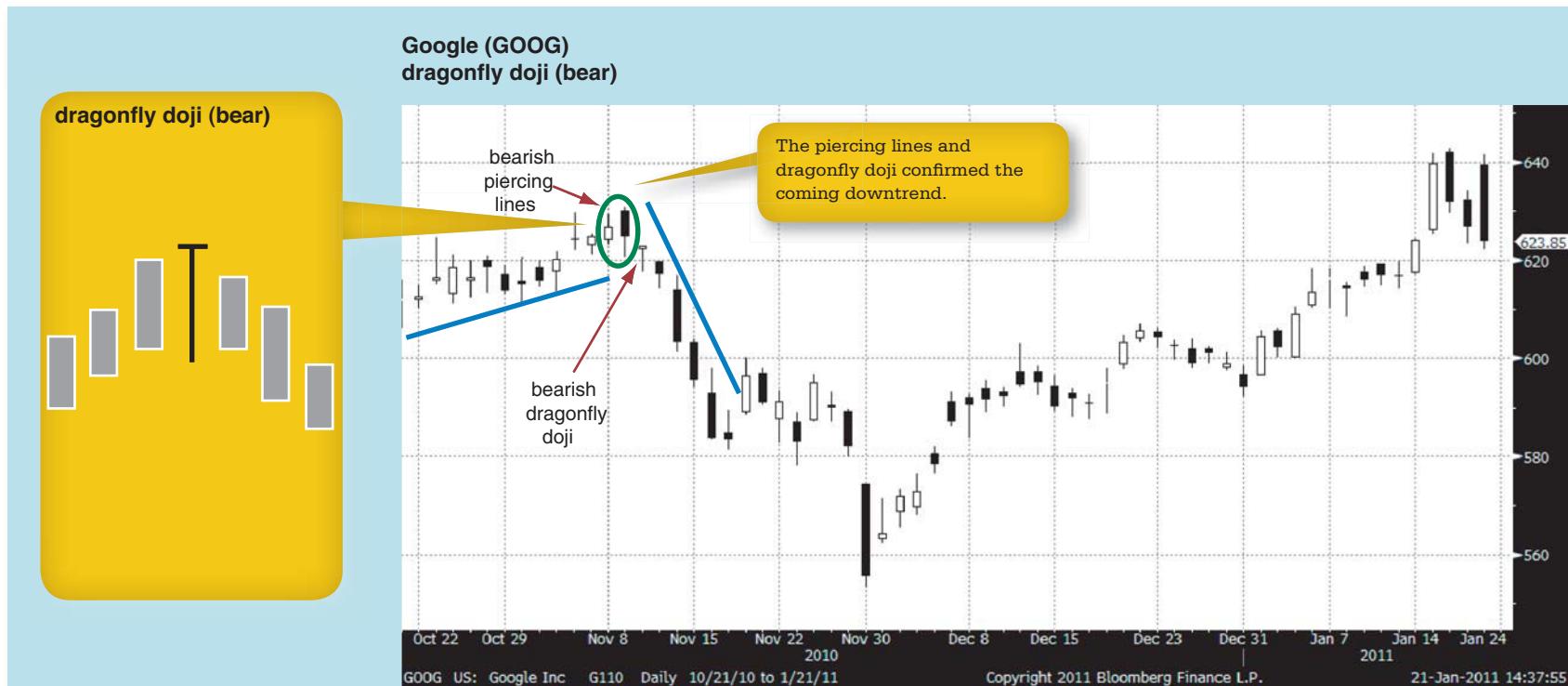
The dragonfly doji is almost always viewed as a bullish signal, due to the long lower shadow. However, it can also work as a bearish signal with placement at the top of an uptrend.

**dragonfly doji (bear)** a variety of the dragonfly appearing at the top of an uptrend. This candlestick has a long lower shadow and no upper shadow. It is usually seen in the opposite position, at the bottom of a downtrend and representing a bullish reversal. The bearish version exists because of the context of placement.

During the session, prices open and close at or close to the same level and a sell-off occurs during the day, only to rebound to the level of the opening price. In a bearish context, in spite of the failed attempt to take prices lower, it signals the possibility of lost momentum among the bulls. However, this candlestick has to be viewed with caution. The test among sellers fails, so this could also lead into a continuation of the uptrend. Before deciding whether it is bearish reversal or bullish continuation, a separate confirming signal is needed.

The bearish dragonfly doji is quite similar to the hanging man. The main difference is that the hanging man is likely to have some degree of real body, often approximating a square shape rather than the longer rectangle. A dragonfly doji has little or no real body.

This candlestick is strongest when it appears at the very top of the uptrend; however, it may also be seen shortly after its peak. An example is Google (GOOG), in which the dragonfly doji was found after a separate and very bearish two-stick development, the piercing lines. This consisted of a white session followed by a black session opening above the range of the first session's body in the form of an invisible gap, and then falling to close within the range of the previous real body. The bear dragonfly doji that followed confirmed the piercing lines pattern. Both the previous uptrend and the resulting reversal and downtrend are highlighted on the chart.



**dragonfly doji (bull)**

a doji with a long lower shadow and little or no upper shadow. It works as a bull reversal when it appears after an extended downtrend. The long lower shadow demonstrates that sellers tried to move the price lower but lacked strength, and momentum shifted to buyers instead.

This one-session signal may be a bullish reversal or bearish continuation. Confirmation is required before acting on the single-stick indicator. In a bearish continuation, the failed attempt by sellers to move prices lower affects momentum only during the session, but does not stop the price from continuing downward.

The more likely reversal is strongest when the down-trend has been underway for some time and independent signals of slowing momentum are present as well. The bullish dragonfly doji may lead or confirm the likelihood of reversal.

The shape and location of the bullish dragonfly doji is very similar to the hammer, a bullish reversal signal. However, the hammer is likely to have some real body, whereas the dragonfly has little or no real body. Other than this, the distinction between the two is not great. The long lower shadow is the most significant reversal sign in either a hammer or dragonfly doji.

The chart for Sherwin-Williams (SHW) shows two dragonfly doji sessions. The first appears after a period of sideways movement and is quickly followed by a white candlestick and upside gap, then additional white sessions. The second is a bullish continuation and is followed by several white candlesticks and strong gapping price action to the upside. Both examples contain moderately strong lower shadows, each demonstrating a failed attempt by sellers to influence price direction.



**KEY POINT:**

The engulfing pattern varies in its strength as a reversal indicator. The greater the contrast in the sizes of each candlestick, the more likely that reversal will follow.

**engulfing pattern (bear)** a two-stick indicator consisting of a white candle followed by a black. The second candle opens higher than the previous day and closes lower.

This pattern is exceptionally strong as a reversal indicator after a period of strong uptrend. It exhibits a change in which bear sentiment takes over, with the bulls having lost momentum. The longer and stronger the preceding uptrend, the stronger and more important the reversal indication in the engulfing pattern.

The relative sizes of the two sessions further define the strength of this pattern. The greater the distance of open-to-close between the two sessions, the stronger the reversal. So when an engulfing pattern involves a second day that barely engulfs the first, it qualifies under the definition; but if the height of the second candle is greater, it indicates more strength. This is especially true for the upper side, since the space between the close of session one and the open of session two is a hidden gap.

It is also possible that the first session will be exceptionally narrow and may form up as a doji or near-doji session. This further augments the strength of the reversal based on the size of the second session. The uncertainty reflected in the doji session provides stronger indication of lost momentum in the uptrend. The top of the second session may also establish or reset the resistance level for further price action. As a result, a down-trend may attempt to rebound; in those situations, a rebound may succeed or fail depending on whether it breaks through the newly set resistance level.

A strong engulfing pattern is shown on the chart of Boeing (BA). Although the preceding uptrend was not particularly lengthy, note the difference in size between the small white day and the larger engulfing black day. This predicts a downturn, and one followed. The duration of the downturn was approximately the same as the duration of the preceding uptrend, an observation that may help estimate the length of reversals. The newly established resistance top held for three weeks before prices moved through and continued upward.



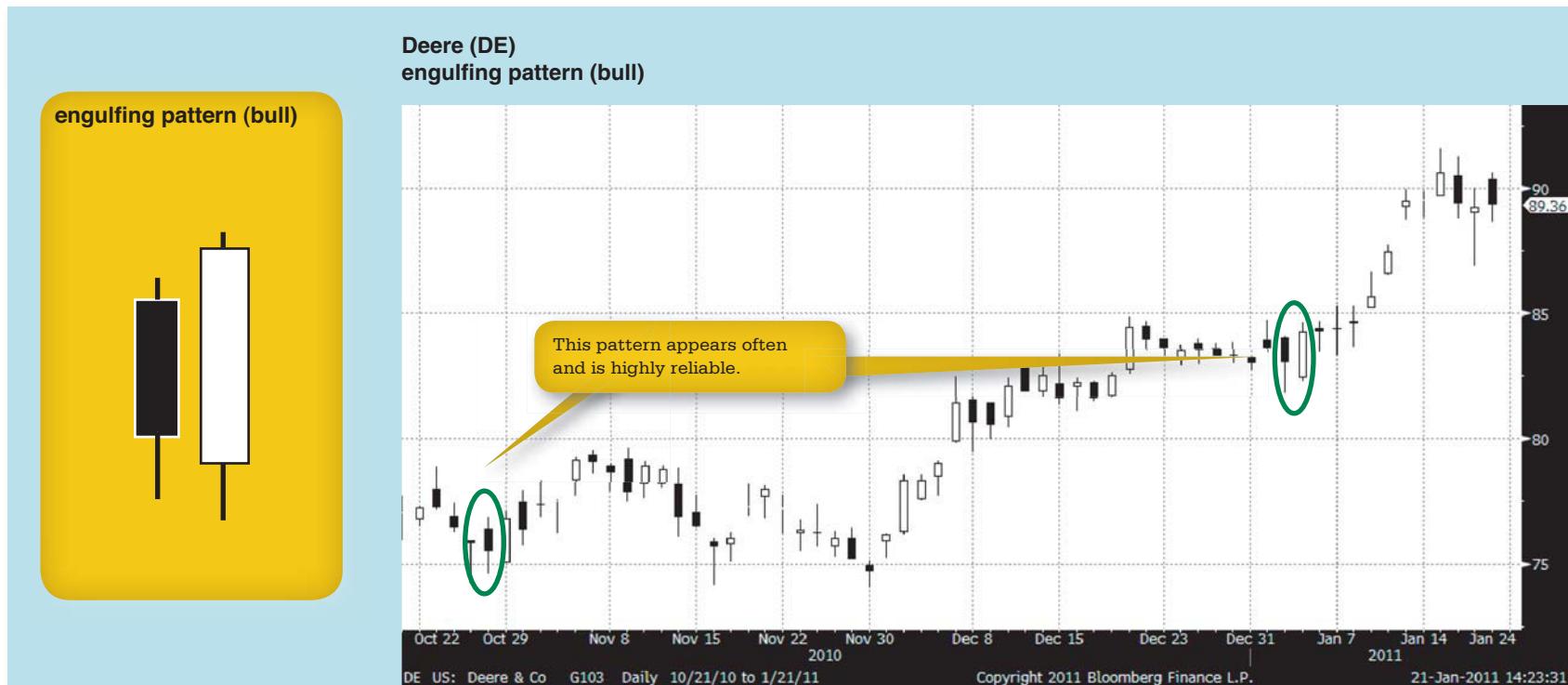
**engulfing pattern (bull)** a two-stick reversal indicator consisting of a black session followed by a white. The white candle opens lower and closes higher than the preceding day. This is a strong reversal signal.

The opening of session two creates a hidden gap from the close of session one; the longer the space on the bottom, the greater the gap and the stronger the indicated reversal. The overall relative sizes of the two sessions also indicate how much momentum the downtrend has lost and how strongly a reversal will occur.

The first session may be extremely small, even a doji or near-doji session. In that case, the uncertainty it represents is even greater in contrast to an exceptionally long second session. The reversal does occur in approximately two out of three times that it appears, which is a very strong record. With confirmation, it is among the

strongest of two-stick reversal patterns. Confirmation may include the pattern as part of a failed test of support; gapping price action; and secondary candlestick patterns.

The chart of Deere (DE) shows two bull engulfing patterns. The first one consists of a dragonfly doji in the first session, adding to the strength of the engulfing pattern. The reversal goes into an uptrend, pauses, retreats, and then takes off again a month later. Once the uptrend begins in earnest, doji sessions are accompanied with strong upside gaps, revealing that the reversal is legitimate and that the uptrend is strong enough to overcome any downward pressure. The second engulfing pattern leads to an exceptionally strong uptrend that includes unusual doji sessions and then strong gapping action.



**KEY POINT:**

The evening star is a bearish reversal sign and the opposite of the bullish morning star.

**evening star** a three-session pattern exhibiting a bearish trend. The first session is white, followed by an upward gap. The second session is black and so is the third. The third session is lower than the second and closes some of the gap created between sessions one and two.

From that point onward, a reversing downtrend is expected to develop. The evening star is a strong reversal indicator due to the third session's filling of the gap.

The pattern is especially strong when the third session also forms as a long black candlestick. The longer

this session and the more of the gap it fills, the stronger the likelihood of a bearish reversal. If the second session is a doji, the pattern becomes a bear doji star, making the reversal even stronger.

An example was found in the chart of Research in Motion (RIMM). After a short but strong uptrend, the evening star appeared. As soon as the gap filled, the downtrend was a near certainty. The resulting downtrend continued for another week and set a support level that held for the next two months.



**KEY POINT:**

The falling three methods is a relatively obscure bearish continuation pattern. However, it accurately predicts movement in about three out of four appearances.

**falling three methods** also called the mat hold (bear) pattern, a bearish continuation indicator in which five separate sessions are involved. This pattern is unusual because the majority of candlestick indicators are limited to three or fewer sessions. Consequently, the significance of the falling three may be overlooked or missed entirely.

The falling three is most likely to occur during a bear market. The first session is a long black candle. Then, after a downside gap, three small white sessions follow in what looks at first like an uptrend. The second of the three may also be a black candlestick within the falling three methods. Each session opens and closes higher than the previous. However, the final, fifth session opens lower than the close of the previous session and then moves downward to create another long black candle. It may look like a reversal is forming, but it remains a bearish indication and is more likely to be a continuation pattern for the established downtrend. The last two candlesticks form a bear engulfing pattern.

The success of this pattern as a bearish continuation indicator proves right nearly three-fourths of the time.

That makes this exceptionally strong. The chart of SPDR Gold Shares (GLD) experienced a downtrend with considerable volatility, including a case of the falling three methods. Preceding this was a downtrend with brief upward offset and then a large gap on the downtrend. The example was especially strong, demonstrated by the resulting downtrend that fell through support in a downward gapping movement.

The falling three methods on this chart expanded to include four sessions of white candlesticks, and when this occurs, it is easy to view the indication as the beginning of an uptrend. Several factors required caution. First, trading had been very volatile and so indicators demanded confirmation before acting. Second, the strength of the upward-moving candles did not hold and, in fact, the downtrend continued strongly with a large downside gap immediately after the long black candle at the end of the formation. Once the long black session developed at the end of this pattern, the meaning of the falling three methods was clear; at this point, astute traders would have known that it was time to close long positions or to open short positions.



**KEY POINT:**

The gap filled indicator is a reliable continuation pattern in both bear and bull versions. The filling of the gap combined with the limits on movement in the third of three sessions is the sign of its reliability.

**gap filled (downside)** a three-session pattern that usually represents a bearish continuation. The first session is a black day, followed by a gap and a second black candle day. The third session opens higher than the second and fills the gap; however, the third session does not exceed the close of the first session.

Because the third session does not break through the resistance set in the first session, this pattern is bearish. This is especially applicable when it appears within a current downtrend. Expectation is that the downtrend will continue.

This pattern can be confusing because it ends with a white session. However, gaps occur between sessions one and two, as well as between sessions two and three. The failure of the white candlestick to exceed the resistance set by session one is the crucial part of this pattern. The pattern is expected to occur during an existing downtrend, necessary for the indicated continuation to be valid. If it appears during sideways movement or in an uptrend, its meaning is much less clear.

Confirmation may take place in several forms. One of the best is gapping action in subsequent, downward-moving sessions. Another would be a breakthrough of previously established support. The length of the sessions adds to the strength of the continuation and the longer the real bodies, the greater the downward momentum.

The pattern is very similar to the downside tasuki gap, with the important distinction that the downside gap filled does fill the gap and the tasuki does not. The chart of Travelers (TRV) shows a good example of the downside gap filled. The third session even rises with a gap of its own. However, it does not exceed the first session's higher close. This is followed by a period of sideways movement, after which the downtrend resumes.

The gap filled breaks through support but immediately retreats and leads to a six-week sideways trend. This concludes with a five-session downtrend in the first week of January, ending with a bullish piercing lines pattern starting on January 7 and leading to an uptrend.



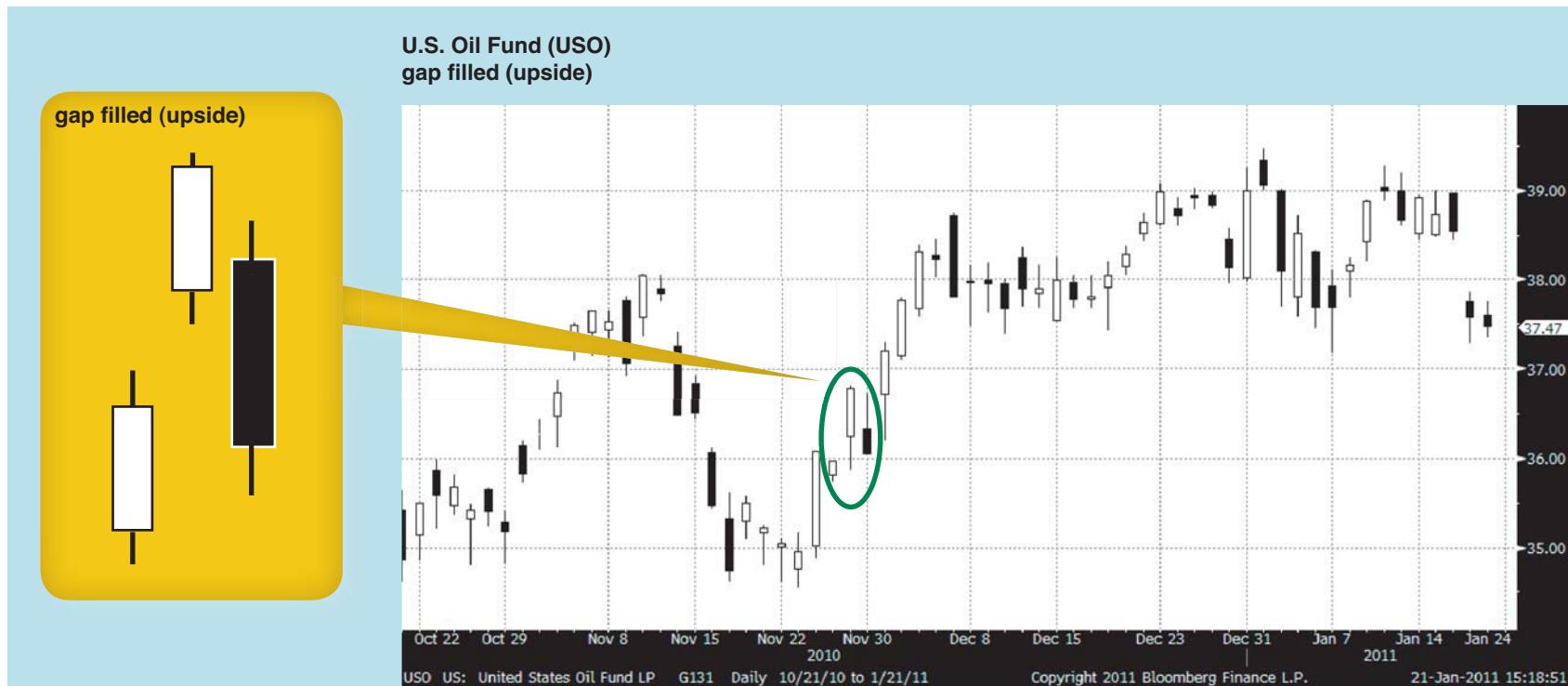
**gap filled (upside)** a three-session indicator that most often appears within a current uptrend. It signals continuation. The first and second sessions are white with a gap in between. The third session opens lower than the second and fills the gap; however, it does not fall below the support level set by the first session.

After this pattern appears, the current uptrend is expected to resume. This pattern may show up anywhere, but as a bullish continuation indicator, it requires that an uptrend be underway when it appears.

The pattern shows an attempt by the bears to seize momentum, but it fails. This is evidenced in the gapping action between all of the sessions and then by the filling of the gap by the third session. Even though it is a black session, it is most likely that the uptrend will continue. Confirmation may consist of gapping price action in further

upward movement or as a follow-up to a failed test of support. The pattern may lead and be confirmed by other signals, or it may itself be an upward-moving confirmation sign. This is similar to the upside tasuki gap with the notable distinction that the tasuki does not fill the gap.

U.S. Oil Fund (USO) exhibits an upside gap filled pattern in the middle of a brief but very strong uptrend. In fact, in this instance, the gap filled pattern confirmed the uptrend first hinted at by the double bottom and failed test of support during the preceding week. The third, black session did not completely fill the gap, but it met most of the criteria. Immediately following the singly black session, prices gapped up and then continued the uptrend with convincing strength. This trend established a higher support level above \$37 per share, and that held until the end of the period shown.



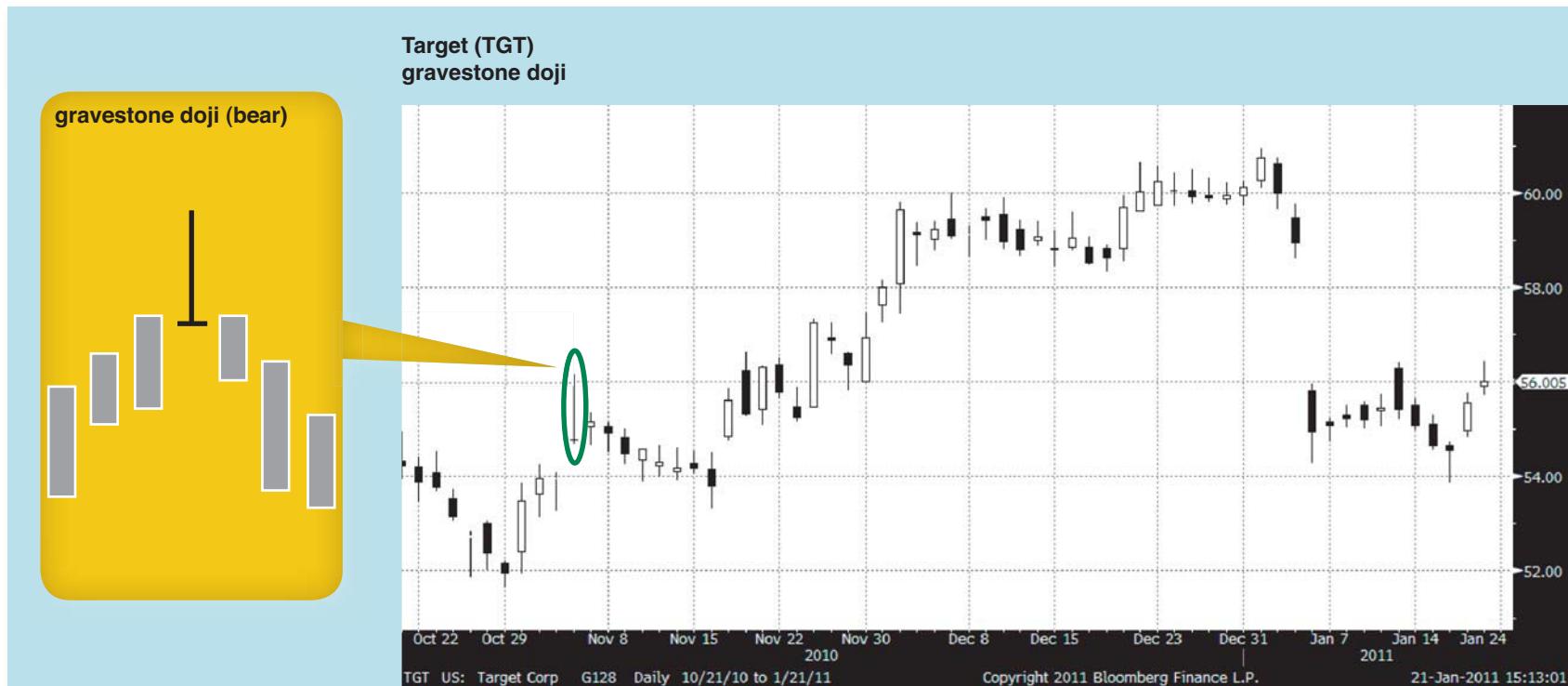
**KEY POINT:**

The gravestone doji is usually called a bearish indicator, due to the exceptionally long upper shadow. However, when located at the bottom of a downtrend, it can also serve as a bullish reversal signal, especially when it confirms (or is confirmed by) other signals.

**gravestone doji (bear)** a doji consisting of a vertical line or exceptionally small rectangular trading range, and an upper shadow. The longer the upper shadow, the stronger the bearish indication.

This reversal indicator appears at the top of the up-trend in order to meet the definition of bearish reversal. In its pure form (with no lower shadow) this is not an easy candlestick to locate. The attempt on the part of buyers to move prices higher and continue the bullish trend fails in this session, which signals the switch in momentum, over to the bears. This signal relies on the upper shadow to signal the change; however, separate confirmation is required before relying on the signal.

Target (TGT) revealed an exceptionally strong gravestone doji. Even though this session had a small lower shadow, it was not significant. The very large upper shadow was very bearish. The gap preceding the doji session was important because it, plus the long upper shadow of the doji day, revealed overbought conditions, confirming that momentum was shifting. It is true in this case as with many others that the extent of the bearish indication was not revealed immediately. Target's price fell slightly before rising strongly. Toward the end of the period shown on this chart, a large downside gap introduced a strong bearish trend. However, that development did not occur until two months later.



**gravestone doji (bull)** a version of the gravestone, which normally is viewed as a bearish signal appearing at the top of an uptrend. In this version, the session appears at the bottom of a downtrend and signals possible reversal. However, due to the long upper shadow—normally indicating failed buy-driven momentum, the bullish version of the gravestone is a weak signal.

The rationale in the bull gravestone doji is that the upper shadow signals sellers that the buy-side interest and momentum might be gathering strength. Even though the effort fails, the real body is a doji and when that appears in a trend, the prevailing side has to take notice. When this occurs, confirmation reveals whether the doji signals reversal or fails.

The session appears very much like a bullish inverted hammer. However, there is a major difference. In the hammer, a small real body is expected to form rather than a doji. The distinction is fine and when the real body is quite small, the pattern could be either a gravestone doji or an inverted hammer. Both signal the same potential for reversal.

The chart of Pfizer (PFE) signals reversal and the upside gap that follows the gravestone session initially confirms the new trend. However, uncertainty takes over and prevails for a full month before an actual uptrend develops. The weak reading in this instance demonstrates the problem with reliance on single-session candlesticks. Bulls ended the downtrend but were not able to push prices into a rally for several weeks.



**KEY POINT:**

The hammer and hanging man are odd signals because they are identical, but have opposite meanings based on where they show up. Another oddity is that the color of the real body does not make any difference in interpreting the signal.

**hammer** (also called a paper umbrella) a bullish indication of one session. The hammer's significance is found in its placement rather than the color of the real body. The hammer appears at the bottom of a down-trend and marks the point of reversal. (When the same candlestick is seen at the top of an uptrend, it is a bearish version and is called a hanging man.) It may be either a white or a black candle and include a relatively small trading range and a lower shadow.

The indicator is a hammer only when a downtrend has been underway. Ideally, the lower shadow should be longer than the real body. The longer the lower shadow, the stronger the likelihood of a reversal. The formation shows that seller momentum has weakened, and sellers were not able to push prices lower. The attempt failed as the price retreated back to the close of the session, creating the small real body. Although an upper shadow may appear, it should be quite small.

When the hammer is seen at or near support, the likelihood of reversal is strengthened. When the session

appears far from support it may be much less significant. This is similar to the bullish dragonfly doji in the sense that the lower shadow draws attention to likely reversal. However, the hammer forms a real body, but the dragonfly is expected to have very little or no distance between open and close. This makes the doji a stronger indicator than the hammer, but the distinction is minimal. Confirmation ultimately determines whether the signal succeeds or fails.

The chart for Kellogg (K) includes a hammer appearing at the conclusion of a strong but brief down-trend. This is a perplexing example of a hammer for several reasons. First, the hammer tested support and broke through briefly. This was followed by several more tests. Sideways movement followed for a full month before the bulls were able to make a decisive move upward. The entire formation from the appearance of the hammer was uncertain; based only on candlestick signals, the final uptrend came without clear signals.



**hanging man**

(also called a paper umbrella) a bearish single-stick indicator appearing at the top of an uptrend and indicating reversal. The significance of this candlestick is based on its placement in the trend more than its shape. Its real body may be either white or black, and its shape includes a relatively small real body and a lower shadow. (When the same candlestick appears at the bottom of a downtrend, it is a bullish version and is called a hammer.)

The hanging man is a fairly weak signal, especially when compared to the dragonfly doji in the same (bearish) position. The doji has little or no real body, making it

stronger than the hanging man with its small real body of either color. It contains a long lower shadow and little or no upper shadow. The longer the lower shadow, the stronger the reversal indication.

General Mills (GIS) had a somewhat unusual version of the hanging man. It appeared not at the very top of the uptrend, but after its peak. Confirmation of the reversal was found in the long black candlestick that followed the hanging man. However, after the long black session, prices did not continue downward but set a new support level that held through to the end of the period shown.



**KEY POINT:**

The harami is valid only when it indicates reversal to a current trend. Otherwise, it is simply a coincidence of color and shape. When properly located, the contrast in sizes of the two real bodies defines the strength of the signal.

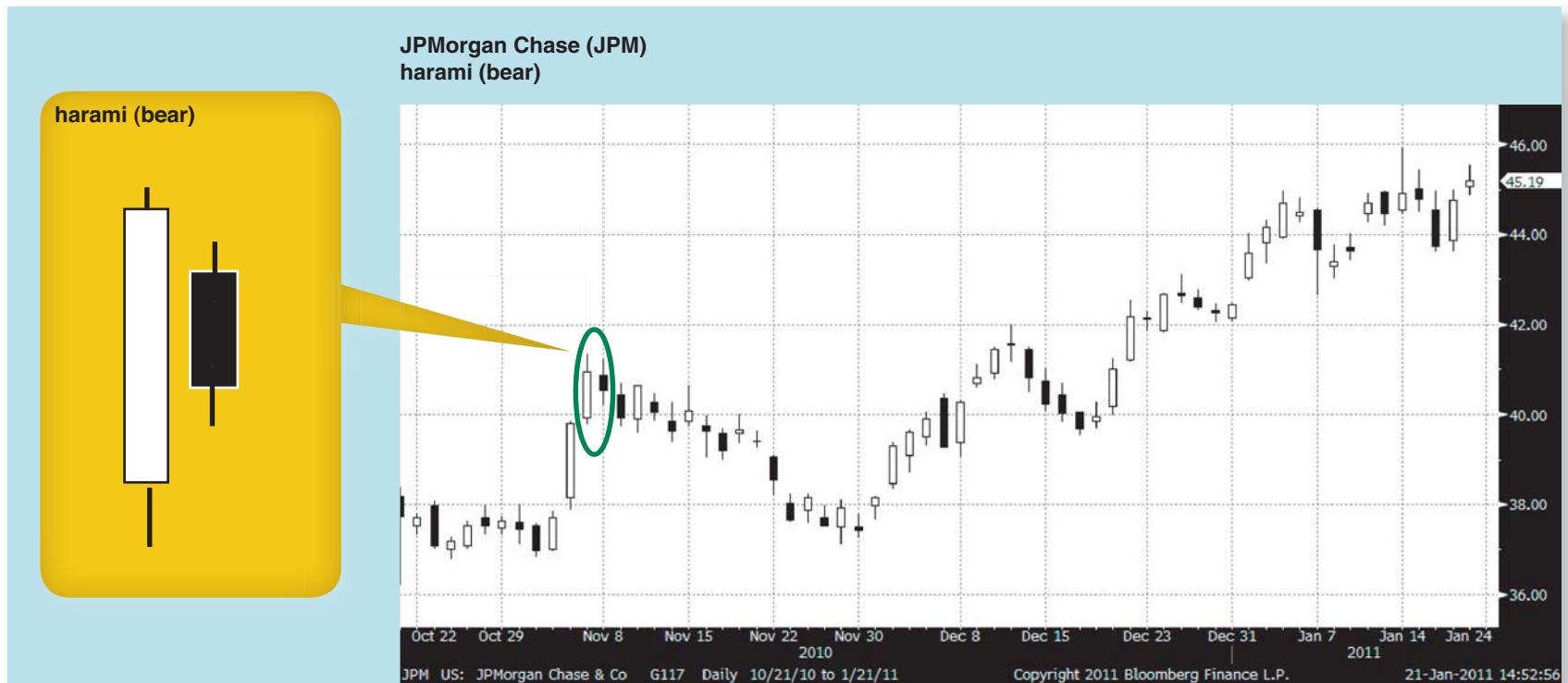
**harami (bear)** a two-stick pattern made up of a white candlestick followed by a black. The second day has a lower opening and closing range than the day before and the real body resides entirely within the previous session's real body. The word "harami" means "pregnant" in Japanese, a reference to the protrusion of the second session.

The pattern signals a reversal of the current uptrend. It is also called an inside day. A bear harami can occur only when the uptrend exists; it signals a loss of momentum and likely reversal.

The longer the set-up session's real body, the more powerful the reversal tendency. When the contrast between the two sessions is extreme, it presents the most convincing example. However, the bear harami

is not a particularly strong indicator. When price trends are sideways, the appearance of a bear harami holds no significance. It works as a reversal of an existing bull trend, but not as a signal ending non-trending markets.

When reversal does follow the bear harami, the top often forms a new resistance level. For example, the chart of JPMorgan Chase (JPM) met the criteria even though the second day's upper shadow extended higher than the real body of the previous day. The real bodies of the two sessions formed the harami shape. This indicator was followed by a downtrend of approximately three weeks' duration. The harami also formed resistance that held for six weeks before a new uptrend broke through.



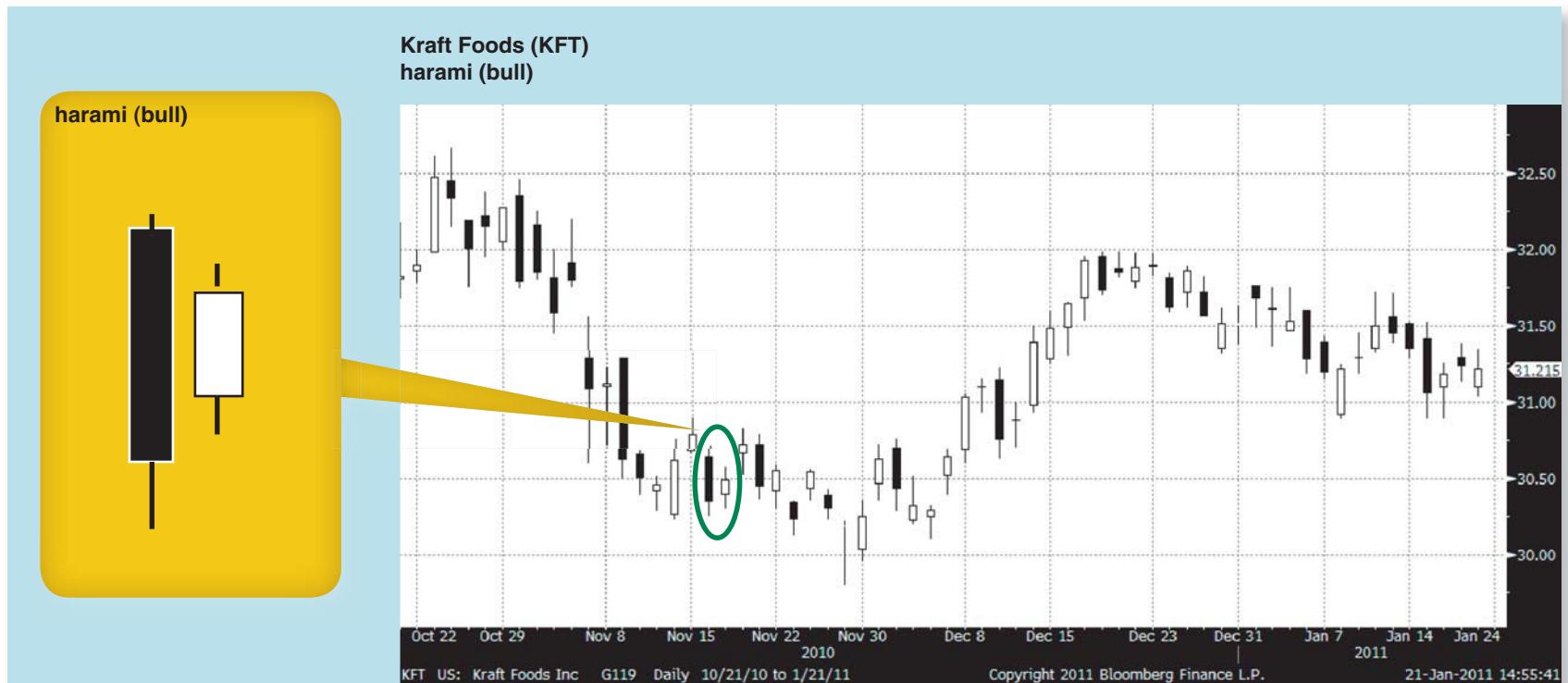
**harami (bull)**

a two-stick pattern in which a black session is followed by a white session. The extension of the white real body is lower than the prior session for both opening and closing price and resides entirely within the range of the previous session's real body.

The existing downtrend is expected to end after the bull harami appears. In order for this pattern to be valid, there must be a downtrend to reverse. All reversals can be recognized only when the existing trend moves in the direction indicated (in the case of the bull harami, downward), so that reversal is possible. The greater the difference in the size of the

real bodies of each session, the stronger the reversal signal.

The speed of the reversal is not certain. The down-trend is most likely to stop, although the uptrend might not begin immediately. For example, the chart of Kraft Foods (KFT) reveals an exceptionally strong bull harami. The second, white session is quite small and clearly resides well within the range of the previous day. Even so, the bull reversal does not occur until three weeks later, following a period of sideways price movement. The uptrend takes place only after repeated tests of newly established support.



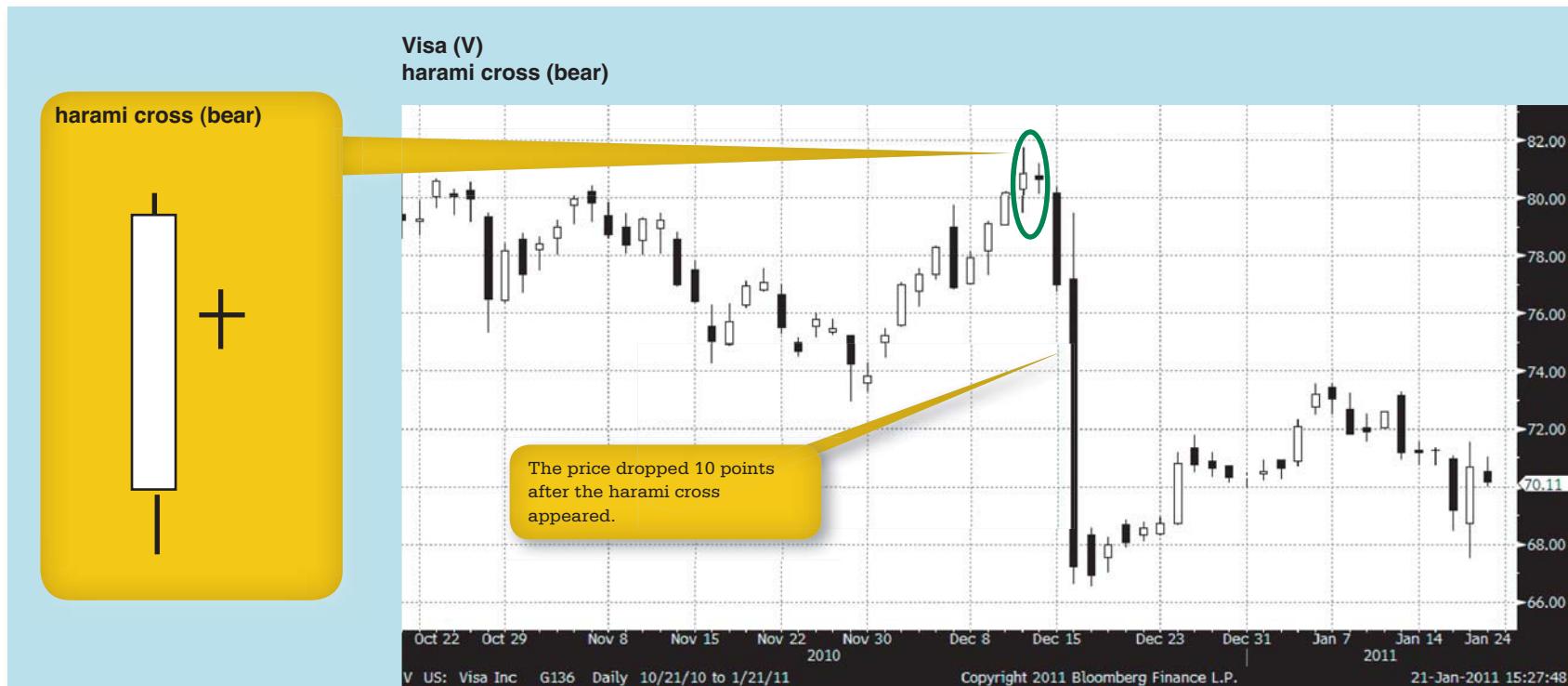
**KEY POINT:**

A harami cross is a stronger reversal signal than the harami. This is due to the extreme contrast of the sizes of the real bodies in the two sessions. The doji or near-doji makes this point.

**harami cross (bear)**

a variation of the harami that provides a stronger reversal signal due to the second session appearing as a doji or near-doji. The initial white candlestick appears first and then the smaller second day. As with the harami, the extreme difference between the real bodies strengthens the reversal. The doji is the ultimate version of the difference, since the space between opening and closing price is quite small. The smaller the real body of the second session and the longer the real body of the set-up session, the stronger the likelihood of reversal.

Clear and independent confirmation should be found before proceeding, as the harami cross is not the strongest of two-session indicators. Visa (V) provided an example of this pattern. The second day was quite narrow, providing a good example of how the harami cross appears with a near-doji following the set-up. This led to a long black candle that confirmed the reversal, and then by an even longer black candle that moved the price down 10 points in a single session.



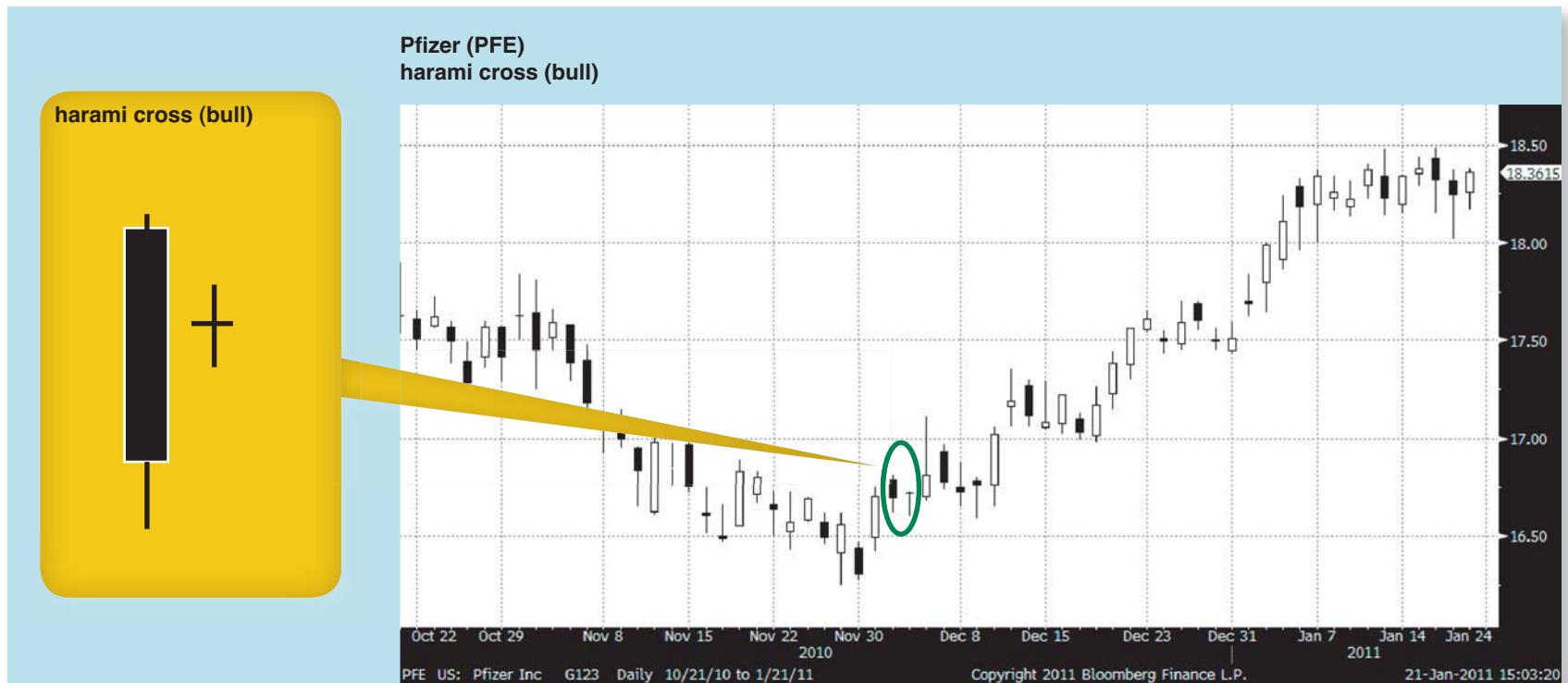
**harami cross (bull)**

a variety of the harami in which the first session is black and the second is quite narrow, forming a doji or near doji (range is quite small). This is the strongest possible extension of the harami, due to the contrast between the trading ranges of each session. When a doji forms in the second session, it is a strong reversal indicator. When the first session's black real body is also quite long, it strengthens the signal even more.

A problem with the harami cross is that it actually leads to reversal only about half the time. In the remainder of appearances, the bear trend continues in spite of this indicator, possibly classifying it as a bear continuation signal. This is especially likely if and when the downtrend is confirmed independently.

In the case of Pfizer (PFE), the bullish indication is very strong. It appears after a downtrend reverts

to sideways movement. The harami cross is further strengthened in this instance by the lower shadow on the second day. This demonstrates a failed attempt by sellers to move the price lower. Momentum shifted immediately to the buyer. However, even with the following long bull trend, the initial signal was very confusing. First, it appeared not at the bottom of the downtrend, but three sessions after. This drew into question whether it should have been treated as a reversal signal. The second source of confusion was even stronger: the set-up session combined with the session preceding it, forming a very clear bearish meeting lines signal (white session followed by a black session closing at the same price). Most analysts at this point would take this as a signal of continued downward movement.



**KEY POINT:**

The homing pigeon is identified as a bullish reversal sign. However, it more often acts as bearish continuation.

**homing pigeon**

a pattern consisting of two black sessions. The first is a long candlestick and the second opens and closes within the range of the first session. This hints at a weakening of downward momentum and potential for reversal and an uptrend.

Although this is supposed to act as a bullish reversal, it is more often a bearish continuation pattern, and the implied weakening of momentum is merely an aberration within the downtrend.

This may be seen in situations where a current down-trend does not exist, when it may serve as a signal that

a bull trend is going to occur. For example, 3M (MMM) had experienced three weeks of sideways movement when the homing pigeon appeared. This was a failed test of support, which was the first clue that the uncertainty of the sideways movement was about to end. Stronger confirmation occurred in the session immediately after the homing pigeon, in the form of an opening white marubozu (small upper shadow and no lower shadow on the long white candlestick). This introduced a new uptrend that lasted not only through to the end of the period shown, but well beyond as well.



**KEY POINT:**

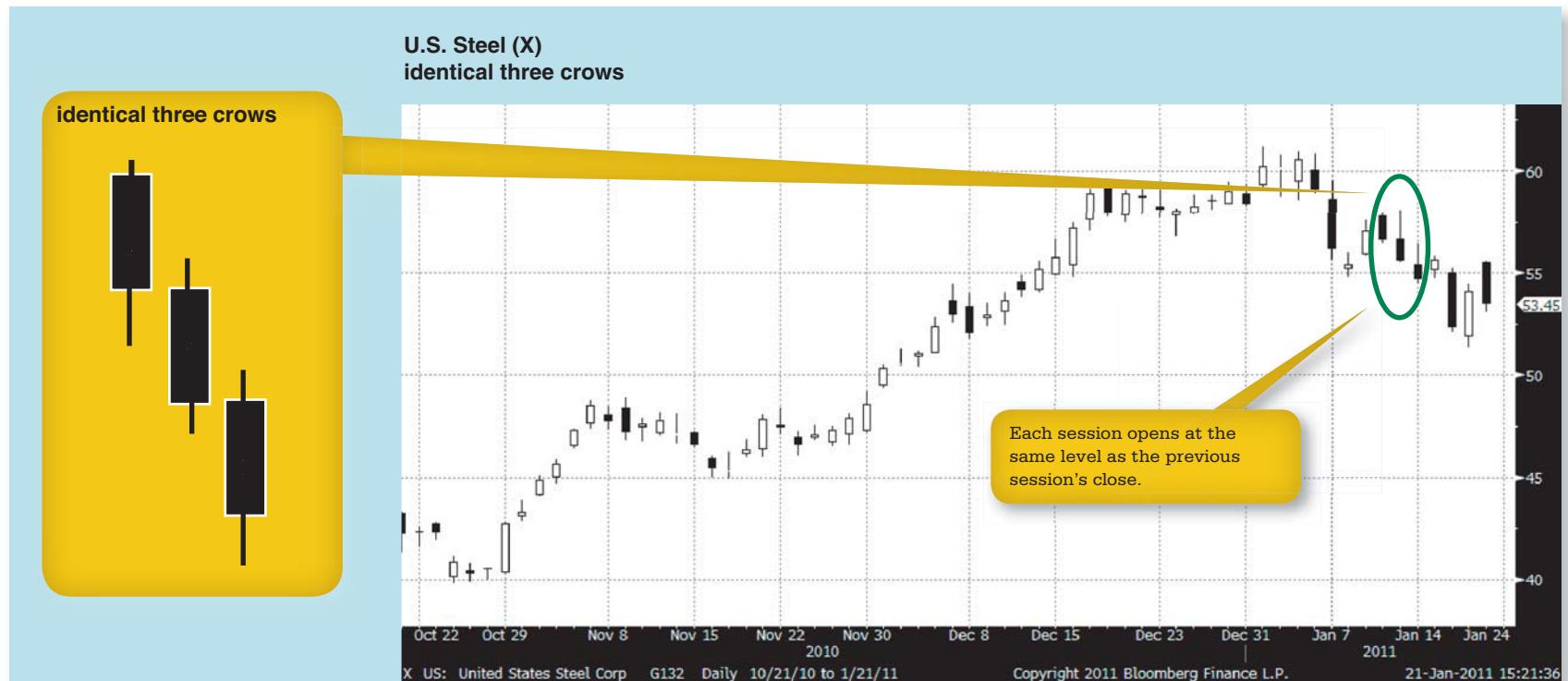
Identical three crows is a rare but exceptionally strong bearish pattern. It is similar to the black crows, but with the same or very close opening and closing prices for each subsequent session.

**identical three crows** a variation of the black crows bearish pattern. In the identical three crows, each session opens at or very near the close of the previous session.

The fact that the open closely tracks the prior close—meaning there is no price gapping throughout the three sessions—implies that the bearish quality of this three-session indicator is exceptionally strong. In the black crows indicator, each session opens within the body of the previous day, but closes lower. There is a small retreat away from the prior session's low. The identical three crows does not include the requisite of an opening price within the range of the previous session's real body.

Although rare, identical three crows is an exceptionally strong bearish signal.

U.S. Steel (X) experienced a nearly perfect example of this pattern (the third session opened slightly below the close of session two). This occurred after an extended period of sideways movement, then a slight downtrend that reversed. Given the long sideways movement, the appearance of the identical three crows was a very strong bearish signal. Following the period shown on the chart, U.S. Steel established support at \$52, then rallied to \$64 before falling in March into a range between \$58 and \$52 per share.



**KEY POINT:**

The in neck patterns are strong because of the gapping action between the close of session one and open of session two. This is easily missed because the most significant feature—the gap—is hidden.

**in neck (bear)** a two-session pattern with a black session followed by a white session. The second day opens after a hidden downside gap (the opening is well below the prior session's close). However, it closes above the prior day's close and below its open.

Although this is a bearish development, it leads to a downward movement only about half of the time that it appears. If the signal appears after an extended and strong uptrend, it is more likely to serve as a reversal. However, when it is seen within an existing downtrend or a sideways movement of price, it is much less reliable.

The chart of Visa (V) provided an example of the bearish in neck indicator at the end of its three-month chart. The fact that the second (white) session was a long candlestick (longer than the first session's black candlestick, in fact) makes this example less reliable than it would have been with a much smaller white session. In fact, in the months following (after the charted period) prices rose to set a new support at \$71 per share. This was an example of the bearish in neck rising rather than falling.



**in neck (bull)** a pattern starting with a white candlestick and followed by a black session. The black opens higher than the close of the white session, creating a hidden upside gap; but it closes within the range of the first session's real body. The second session is not able to move below the first session's range.

This is a bullish two-session pattern, but it leads to bullish price movement only about one-half of the time. After a period of extended downtrend, the bullish in neck pattern is more likely to become a reversal signal. When it is found within an existing uptrend or after sideways movement, it is less reliable and should be seen as significant only if it is independently confirmed.

In the example of Microsoft (MSFT), an existing uptrend had started earlier when the bullish in neck signal appeared. This turned out to become a bullish continuation signal. Because there was not a downtrend or sideways movement immediately before this development, its significance was not great. A reversal would be possible only when the indicated downtrend exists; so in this case, the in neck would have needed to occur after a downtrend in order to be classified as a bullish reversal signal. Because it exists within an uptrend, it is more accurately called a bullish continuation indicator.



**KEY POINT:**

Inside patterns are self-confirming in one sense: The first two of the three sessions form a harami, and the third confirms the direction indicated.

**inside (down)**

a very strong reversal signal of three sessions. The first two develop as a bear harami (a white session followed by a black opening and closing within the range of the first session's real body). The third session opens within the range of the second session and then closes lower than the range of the first session.

It is exceptionally strong because of its two parts. The bear harami is a strong indicator by itself. The fact that the third session opens within the range of session two and then moves downward confirms the harami and sets up a great likelihood of a reversal.

As a reversal indicator, the inside down is most powerful when it appears at the top of the trend. It may also appear as part of a test of resistance or a breakout that fails and then retreats. This is the strongest form of confirmation for this indicator. The longer the first session,

the more likely a reversal; after an uptrend, any long candlestick signals potential change. The long white session may indicate continuation; but when it then forms into a bear harami, the picture changes entirely. The third session, lower and black, confirms the reversal.

The inside down indicator for Merck (MRK) followed an uptrend lasting nearly two months. The reversal was followed by a very large downside gap and subsequent downside recurring gapping sessions. A second interesting point in this case is that prices broke through a long-standing resistance level of \$37 and then formed the inside down pattern. Prices then retreated and gapped much lower. The failed breakout was strongly bearish, and analysts keeping an eye on the resistance price would have been most likely to spot this development.



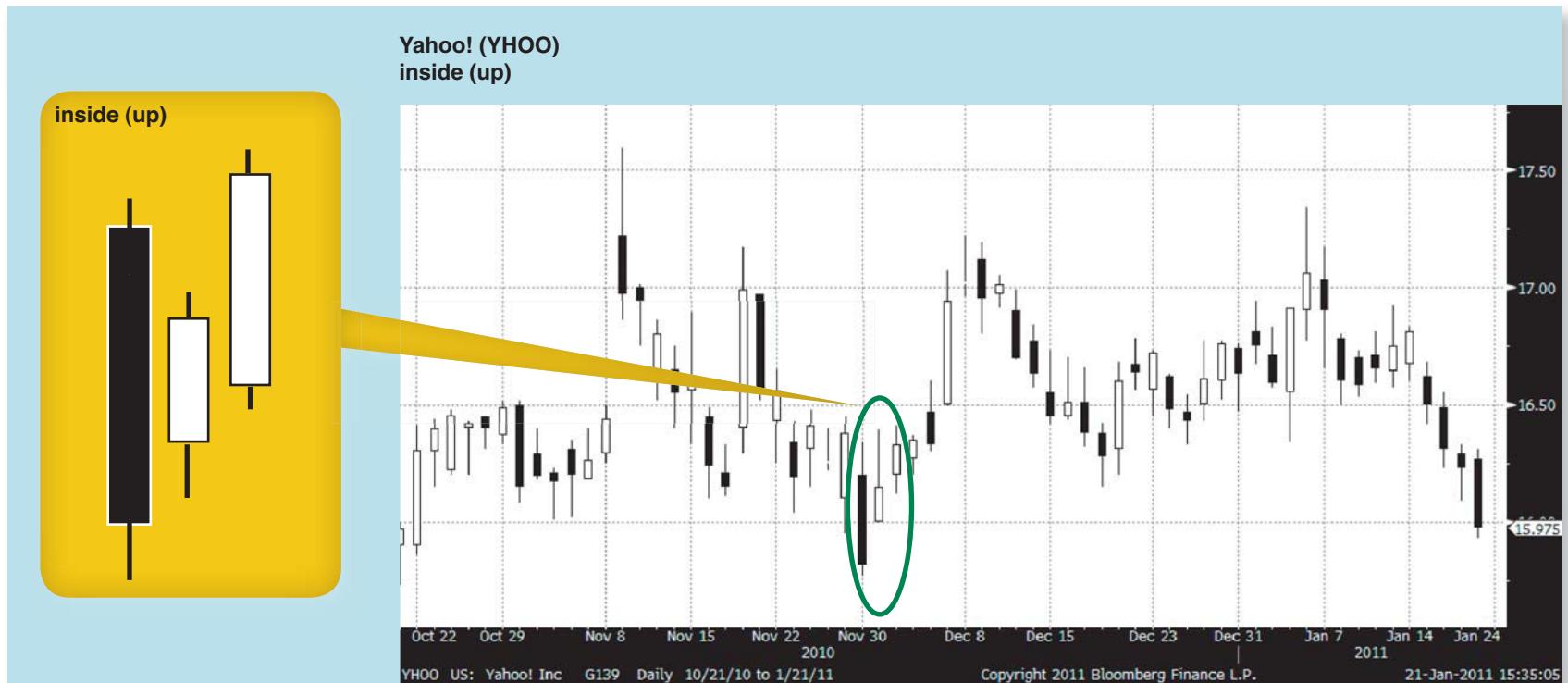
**inside (up)** a three-session bullish reversal of exceptional strength. The first two form a bullish harami, a signal considered strong on its own merit. The third session is another white candlestick that opens within the body of session number two and then moves and closes higher than the range of the first session.

The inside up consists not only of the bullish harami, but a confirmation of that signal in the third session. It is especially strong when it is found after an extended downtrend.

A downtrend must be in effect in order for the inside up to have reversal significance. The bullish harami is confirmed when the third day opens above the previous close (creating an upside hidden gap) and then moves

upward, signaling the beginning of a new uptrend. The reversal is confirmed strongly when the inside up forms at support. This turn-around at the point of a failed breakout or test is the strongest position for it to appear.

Yahoo! (YHOO) exhibited a volatile three-week downtrend concluding with an inside up pattern that included a gap between sessions two and three. It led to an uptrend and establishment of a new support level that was not violated successfully until the last session on this three-month chart. The formation also represented an attempted breakout below the established support of \$16 per share. The subsequent uptrend continued for nearly two months before support was tested again, at the conclusion of the charted period.



**KEY POINT:**

The inverted hammer is a paradox, a bullish version of what is often considered bearish (the shooting star).

**inverted hammer (bull)**

a variation of the hammer, a one-session pattern with a relatively small real body of either color, and an upper shadow but no lower shadow. The inverted version appears at the bottom of a down-trend. (When the same pattern is seen at the top of an uptrend, it is a shooting star).

This is one of the rare examples of a candlestick that may form in a white or black day. The color is not as significant as its placement at the bottom of the existing down-trend, and the signal of reversal. This is not a particularly strong indicator and it might signal an uptrend even when the existing down-trend was quite brief.

The sequence of sessions before and after may be of either color, although the ideal placement follows downward-moving days and predicts upward-moving reversal. The longer the upper shadow, the stronger the

indication. Analysts may expect the shadow to be at least the same height as the real body and if longer, it hints at more likely reversal. Although the color of the real body does not matter, a white real body is somewhat more convincing than a black one. This indicator is similar to a bullish gravestone doji. However, the gravestone is more likely to be a doji session, while the inverted hammer has a small real body. The distinction is not as important as the fact that both predict reversal.

An inverted hammer for Alcoa (AA) followed a very short down-trend of only one-half point, but preceded a very strong up-trend. In this example, the inverted hammer was a black session; it was confirmed the following session, which opened with an upside gap and then formed a long white candlestick. Upward gapping prices followed for all of the next five sessions.



**KEY POINT:**

Kicking indicators are important due to two features: the contrasting colors of the two sessions and the price gap. It may also end up as continuation or reversal, all depending on placement.

**kicking (bear)**

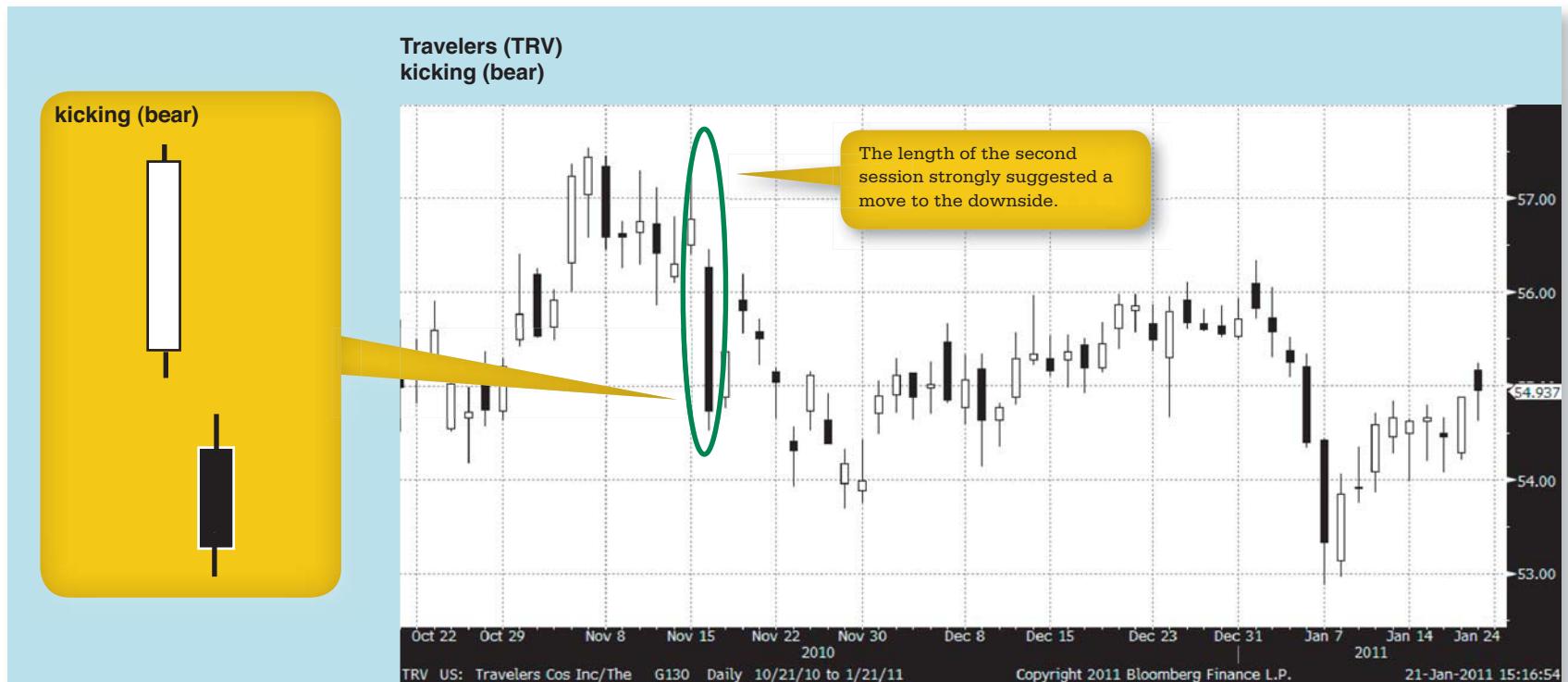
a two-session indicator starting with a white candlestick in the first session and followed by a downside gap and then a black candlestick in the second session.

This pattern is an exceptional reversal indicator because one or both of the sessions are long candlesticks or marubozu sessions, making the gap and reversal of direction much more significant than it would be in the case of average-sized sessions. While a kicking pattern may appear at any point in the trend and serve as either reversal or continuation, it is most significant when it marks the end of a current uptrend and the beginning of a new downtrend.

The gap between the close of session one and the open of session two is powerful as well. It consists not

only of the visible gap between the real bodies, but additionally of the total distance between the close and open of the two sessions. If one or both sessions are also long candlesticks, it adds to the strength of the reversal.

Travelers (TRV) is an example of a kicking pattern with the long candlestick appearing in the second session. This marked the advent of a new downtrend following a brief uptrend, so the pattern met the criteria, even though the kicking followed sideways movement, representing a delayed reversal from the previous uptrend; its indicator could also be interpreted as a bear continuation of the short downtrend preceding it. The long black candlestick by itself was a strong signal, but the two-session development was even stronger.



**kicking (bull)**

a two-stick pattern that may signal reversal of a downtrend or continuation of an uptrend. It consists of two sessions. The first is a downward candlestick, often a long session or marubozu; the second is an upward candlestick and may also be a long session or marubozu.

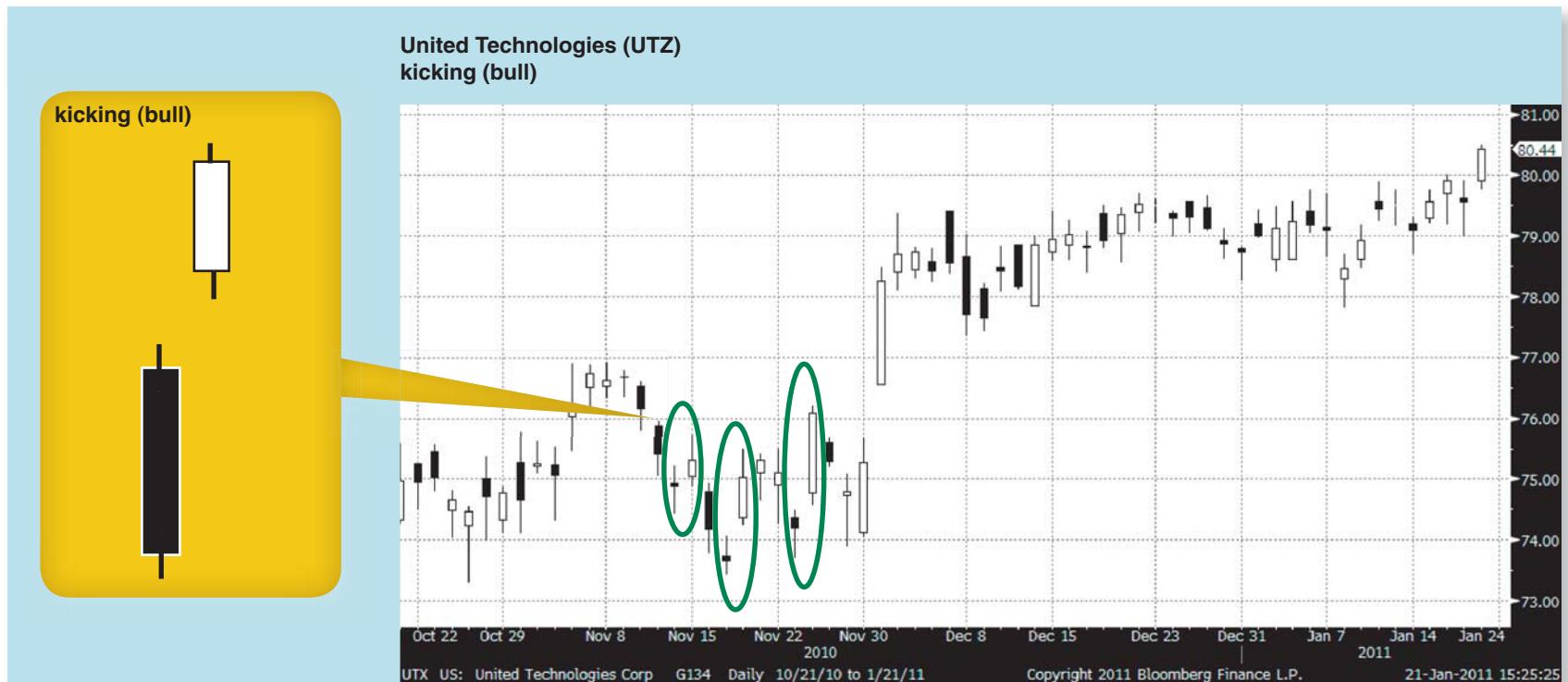
The kicking is most valuable when it marks reversal of a current downtrend. However, it may also appear in the middle of an uptrend and signal continuation.

In its ideal formation, the first (black) session is a long candlestick. A long candlestick appearing in the second, white session is also a reliable signal. Long candlesticks in both sessions represent the strongest variety of the kicking pattern. However, the pattern can develop even with a small candlestick in one of the sessions. The important feature is the contrast in colors and the gap between the sessions, as well as placement. After a downtrend, this represents strong reversal. Within an existing uptrend, it is interpreted as a continuation

indicator. If the bull kicking reverses a downtrend and also tests support, it provides a very strong likelihood of bullish reversal.

The chart of United Technologies (UTZ) is quite unusual. It presents three examples of a bullish kicking signal in close proximity. None include long candlesticks in the first session; however, each of the second, white sessions extends further than the one before. This makes the overall recurrence of the pattern very strong. Each confirms the prior one.

The value of the reversal signal includes a failed test of support, and the kicking was further confirmed with the strong upward gap that broke through resistance and marked an ongoing uptrend that followed, including the exchange of previous resistance with new support at \$77 per share. In this example, the bullish kicking pattern recurring at the bottom of the downtrend was exceptionally revealing and it correctly foreshadowed the strong upward movement and new trading range.



**KEY POINT:**

Ladders are unusual because they involve five sessions. In addition, they combine two other key indicators: white soldier or black crowd, followed by hanging man or inverted hammer. This is a lot of confirmation for either continuation or reversal.

**ladder bottom**

a five-session bullish indicator seen at the conclusion of a downtrend. The pattern combines several strong signals. The first three sessions are black and form either a black crows pattern or a three-session downtrend. If this includes gaps between sessions, it strengthens the reversal indication. The fourth session is also black and contains an upper shadow but little or no lower shadow, representing an inverted hammer, which by itself is also a very bullish signal. An upside gap follows and the fifth day is a white session.

The initial development may also represent a very bullish signal, the concealing baby swallow. However, before acting on this as a reversal signal, the fifth, white session should appear after the upside gap. Once this development is found, the ladder bottom is recognized as a very strong bullish reversal indicator.

The existence of a downtrend is essential in order for this pattern to hold significance. It is both the last leg of the downtrend and a reversal indicator, often too subtle to be recognized for its importance until after the reversal has ended. The inverted hammer in the fourth day is the signal that analysts may take either as a stand-alone sign of reversal or as confirmation of the ladder itself. This may be the result of short covering or the more likely loss of momentum among sellers.

In the case of Alcoa (AA), the pattern was exceptionally strong with added gaps between sessions two–three and three–four. The fact that this was followed by the upside gap and white session augments the strength of the reversal. The following upward trend in the price included sideways movement before the upward trend began, which then lasted over two months.



**ladder top** a bearish indicator including five sessions and a combination of several strong signals. The first three sessions are white and surpass one another much like the white soldiers pattern. The fourth session closes above the prior and forms a hanging man. A downward gap follows and then a long black session.

The top of this pattern looks like a bearish belt hold, complete with the downside gap. The combination of several bearish indicators makes the ladder top an exceptionally strong reversal signal; however, no action should be taken until the gap and black candlestick session develop.

The strength of the preceding uptrend often predicts the offsetting strength of the downtrend to follow the ladder top. Procter & Gamble (PG) exhibited all of the elements of the ladder top, including additional gapping action between sessions two–three. The pattern preceded a downtrend lasting a full month. Note the closing white marubozu followed by the hanging man in sessions three and four; both close at the same price, establishing a new resistance level. This held for five weeks before it was tested, and a breakout that held did not occur until nearly five weeks from the date of the ladder top.



**KEY POINT:**

Long candles are among the most important of candlestick signs. They are easily recognized because of their size relative to other sessions. The distance between opening and closing prices reveals a strong tendency in favor of the direction (up for long white or down for long black).

**DEFINITION:****iShares**

iShares is a term referring to a group of exchange-traded funds (ETFs), or "index shares." Originally called World Equity Benchmark Shares (WEBS), these were first marketed by Morgan Stanley and fund manager Barclay's Global Investors.

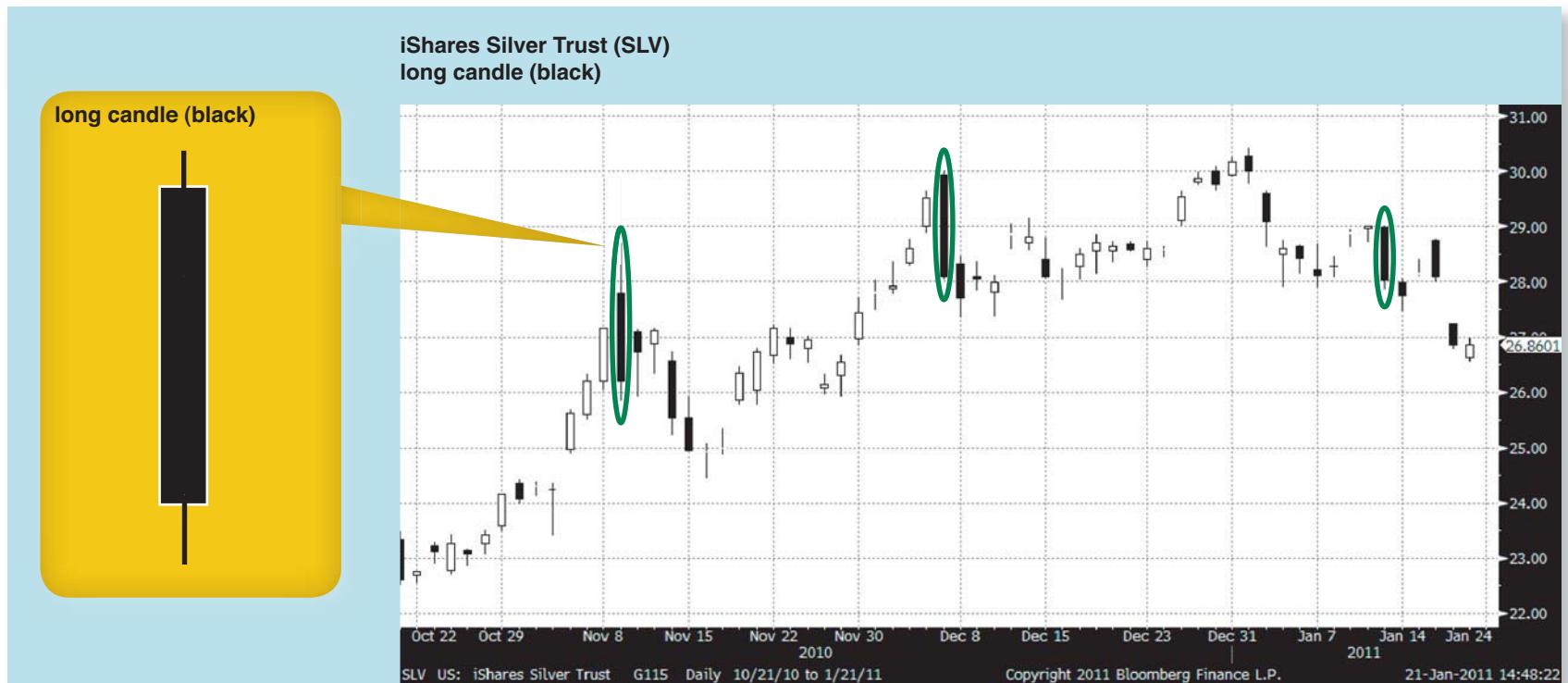
**long candle (black)** an exceptionally strong single-session bearish signal. The session is a black candlestick that is much longer than the typical or average range of sessions surrounding it.

The candle demonstrates a wide distance from the top (opening) price to the bottom (closing price), signaling that sellers were in control during the session and that the momentum is likely to carry forward to future sessions, either as a reversal from a current uptrend or as continuation of an ongoing downtrend. As a reversal signal, the long black candlestick is a very strong signal, especially if it also occurs as a segment of a larger candlestick reversal indicator; as a continuation signal within a current downtrend, it reveals that downward momentum has not weakened.

The long candlestick usually has an upper or lower shadow, or both. When one side or the other has no shadow, the formation is both a long candlestick and a marubozu.

The chart of **iShares** Silver Trust (SLV) contained three long black sessions. In each instance, the session was longer than sessions surrounding it, and each led to a subsequent downward price trend, making these reversal signals.

The first long black session on the chart also had an unusually long upper shadow. This revealed that during the session, buyers attempted to move the price higher, but that attempt failed. Price retreated back into the real body and closed at its bottom. The second formed as part of an important bearish three-session indicator, the outside down (a white session) followed by a larger black (long candlestick) and then a second black session opening higher than the previous close, and closing lower. The third long black session confirmed the hanging man appearing in the preceding session, and led to a series of downward-moving sessions.



**long candle (white)** one of the strongest of the single-stick indicators, a session exhibiting exceptionally wide movement between the bottom (opening) and top (closing) prices. This may act as a reversal from a current downtrend or a continuation within an existing uptrend.

The long white candle may have upper or lower shadows or both; in one variety, the marubozu, one or both shadows will be missing.

DuPont (DD) displayed a long white session as the second portion of another bullish indicator, the engulfing pattern. It also was part of yet another bullish indicator, the outside up pattern (a small black, engulfing white, and higher white session). The two other bullish indicators served as multiple confirmation, made the indication especially strong, and led to a multisession uptrend of four sessions, three of which also revealed upside gaps.



**KEY POINT:**

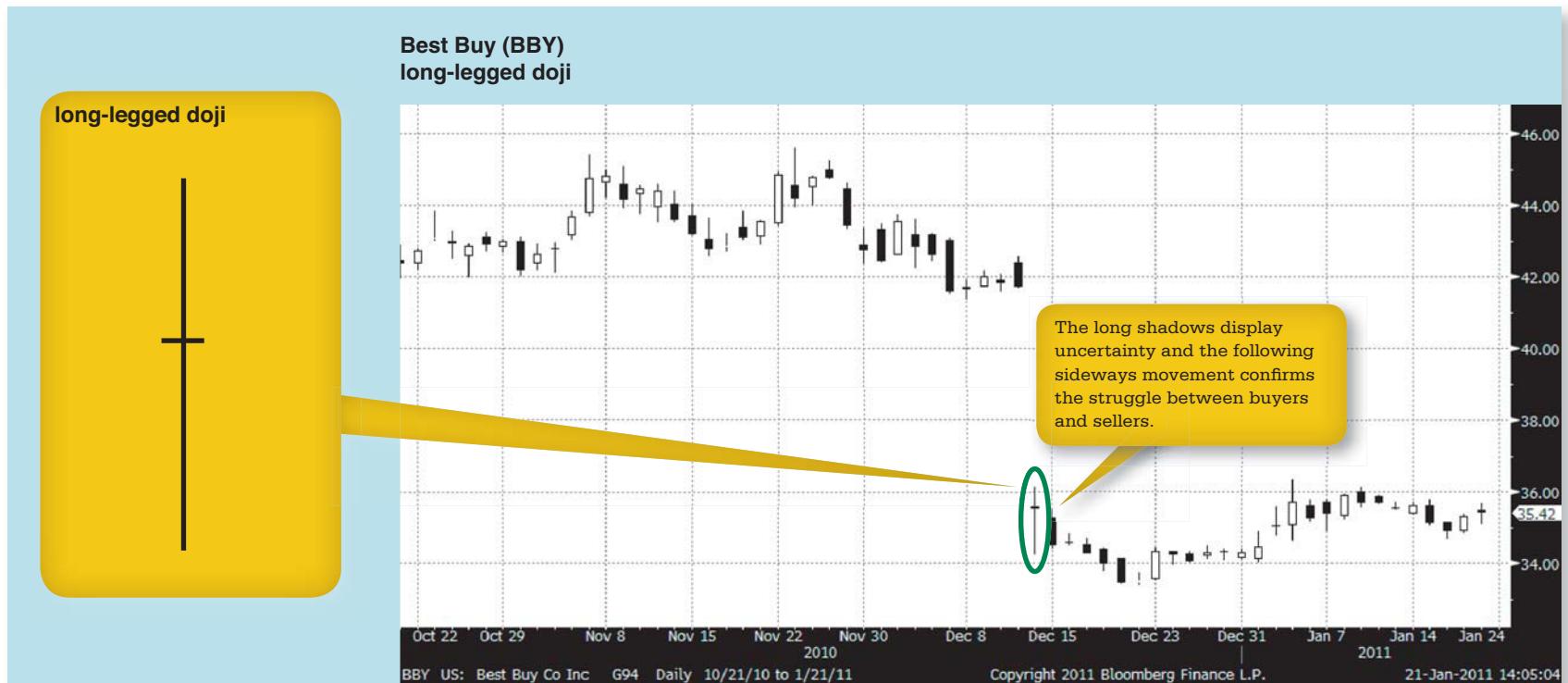
The long-legged doji combines two key signals: the narrow range between opening and closing, combined with exceptionally long upper and lower shadows. This reveals the extreme struggle between buyers and sellers, with neither side able to move price by the close.

**long-legged doji**

a session with little or no distance between opening and closing prices, revealed through the horizontal line in place of a real body. In this form of doji, the session also displays exceptionally long upper and lower shadows.

The long shadows in both directions indicate a struggle between buyers and sellers to move price. Both fail, however, since the range retreats to or near the opening, and the session closes in the same place. The price activity in the long-legged doji reveals indecision and uncertainty. When this formation is seen within a strong uptrend or downtrend, it indicates that momentum is slowing down and approaching equilibrium between buyers and sellers; this may precede a period of sideways movement or a reversal in direction.

An unusual example of a long-legged doji was found in the case of Best Buy (BBY). An extended period of sideways price action concluded with a large downside gap of seven points, a long-legged doji, and resumption of sideways movement at the lower price range. This continued for the next two months (beyond the chart shown) before establishing a new downtrend. This was an unusual development in the sense that the large gap was never filled, which was a response to negative earnings news. The company had just released quarterly earnings, which were 54 cents per share versus expectations of 61 cents, or 11.5 percent lower than expected. Even so, when large drops such as this occur on poor earnings news, there usually is some offset in the price in sessions that follow. The long-legged doji was the first clue that filling in of this gap was not going to occur.



**KEY POINT:**

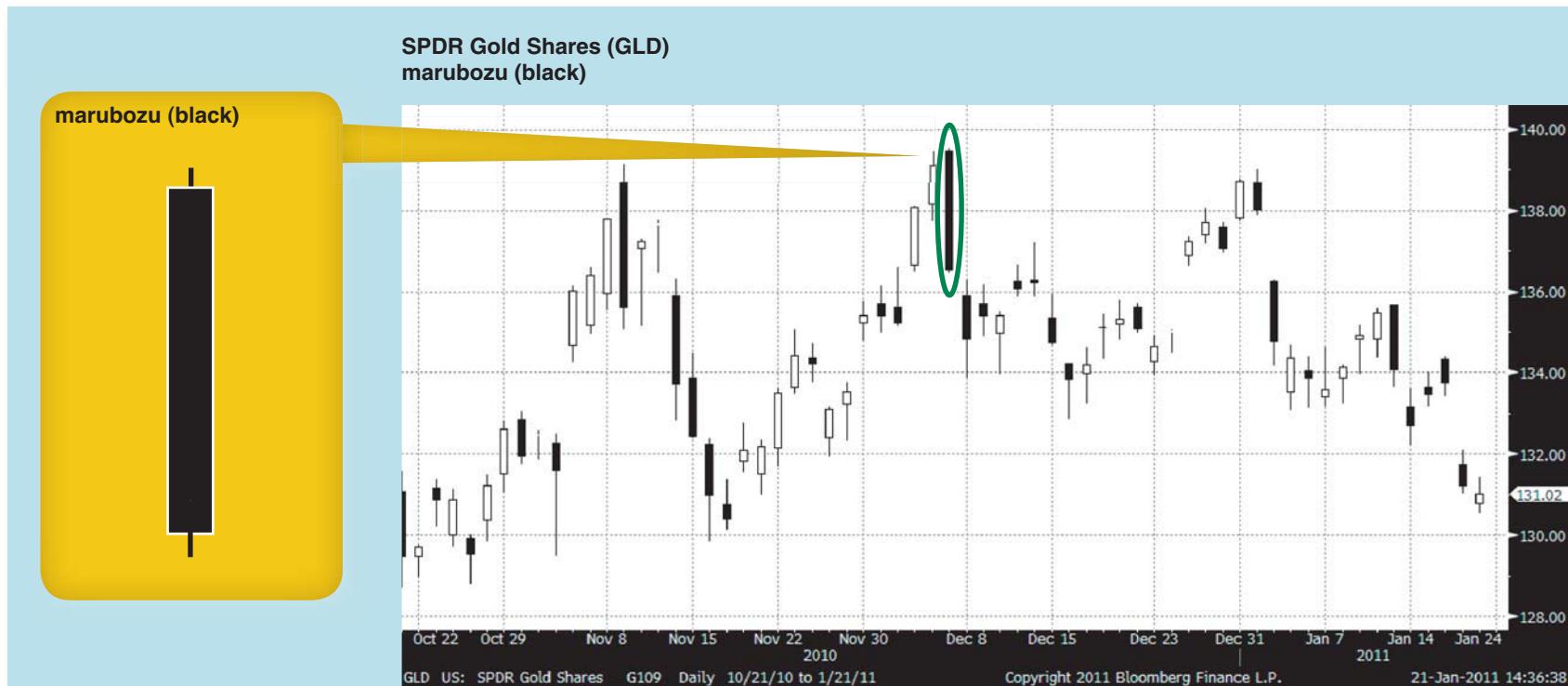
Why is the black marubozu a stronger near signal than other long black candlesticks? The answer is all in the shadows. Compare price action following long black sessions with that following marubozu sessions to spot changes in price reaction.

**marubozu (bear or black)** a long candlestick considered strongly bearish. In Japanese, the word *marubozu* means “with little hair.” This refers to the distinction between a long black session and a marubozu. The marubozu has little or no upper or lower shadows.

There are several varieties of black marubozu sessions. The important feature is the length of the session, a display of an unusually long price distance between the top (opening) and bottom (close) of the session. This reveals strong momentum on the sell side. When this is shown within an existing downtrend, it is a continuation session. When it is found at the top of an uptrend,

especially with confirmation signs (price gaps or volume spikes, for example), it is one of the strongest signals of a reversal and marks the beginning of a downtrend.

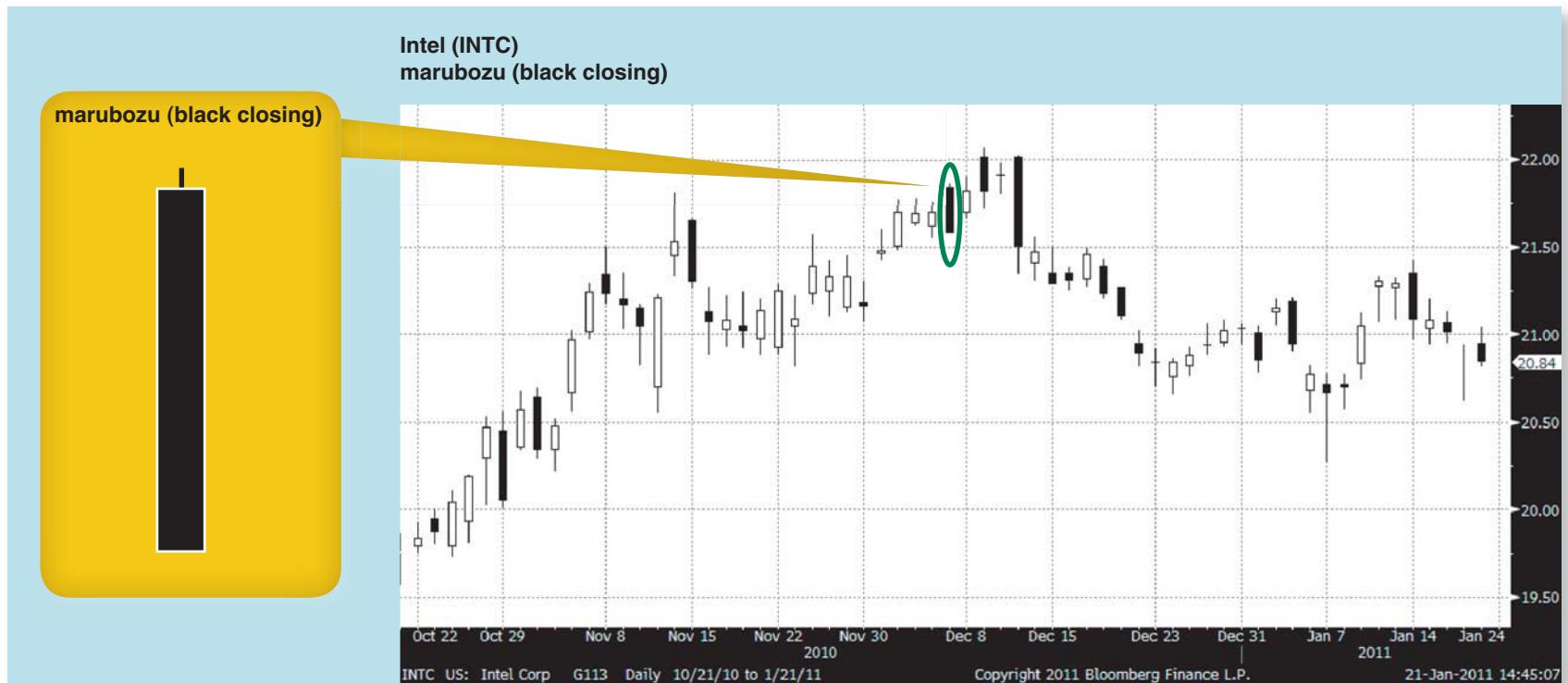
In the case of SPDR Gold Shares (GLD), a typical marubozu session appeared at the end of a very strong uptrend. Note the extremely small upper and lower shadows. This revealed very little power among buyers for the session. There was little price extension above the open at the top. The reversal was confirmed because the marubozu represents the second leg of the two-session bearish engulfing pattern.



**marubozu (black closing)** a variation of the marubozu characterized by a short upper shadow and no lower shadow. The close is equal to the session's low, and during the session a small degree of trading occurred above the open. The very small upper shadow indicates that buyers had very little effect on trading, and that control is in the hands of sellers.

As a variation of the long black candlestick, this session acts in the role of continuation about half the time when it appears within a downtrend. As a signal found in an uptrend, it is more likely to provide a strong reversal indicator, especially if it forms part of a distinct two- or three-stick bear reversal signal or is confirmed by other patterns.

Intel (INTC) revealed an example of the black closing marubozu. The session did not appear at the exact top of the uptrend, but anticipated the downturn four sessions in advance. The bullish harami cross appearing two-to-three sessions later was a confusing and contradictory signal. However, that was followed by the long black session that began the actual downtrend. The combination of bearish and bullish signals in close proximity made this a very uncertain trend. Before acting on any situation with offsetting indicators, traders need to find independent confirmation or, lacking that, wait out developments.



**marubozu (black opening)** a long black candlestick with no upper shadow and a very small lower shadow. This, like all long candlesticks, is a strongly bearish indicator and often confirms other bearish signals, in the form of candlesticks or Western technical price movement.

The black opening marubozu often will be found within a downtrend, in which case it is a continuation indicator. If it appears at the top of an uptrend or soon after the upward price movement has stopped, it is a very strong signal of reversal and a coming downtrend. This might occur immediately or after a pause. The importance of this as a reversal signal is high when independently confirmed by other signs, such as downward price gaps, volume spikes, or a following doji session.

The chart of Yahoo! (YHOO) reveals a good example of this pattern and how it works in reversing the current trend. Price levels were volatile and after an upward move, retreated; then tried moving upward once again. At that point, direction was uncertain. However, the appearance of the black opening marubozu settled the matter, especially as it also represented the second part of a bear harami indicator. It often is the case that a long candle session will provide its own indication, but also serve as part of a larger signal. This was followed immediately by a strong downtrend, lasting a week before price again testing new resistance. By the end of the period on the chart, the bears were winning once again.



**KEY POINT:**

The white marubozu is strongly bullish, just as the black version is strongly bearish. The very small shadows or complete lack of shadows implies that one or both sides were not able to extend price very much beyond the open-to-close range.

**marubozu (bull or white)** a strongly bullish single session and a variety of the long white candlestick. It contains extremely little upper or lower shadow and may appear with the full trading range equal to the distance between the opening and closing price, with no extension in either direction. In this instance, the session closes at its high.

The lack of upper and lower shadows on a long white session is exceptionally bullish. It demonstrates no ability by sellers to move price below the open, and because the candlestick is long, it shows that buyers controlled the trend to close at the highest price of the session. This

marubozu represents a strong reversal session at the end of a downtrend, especially when it is confirmed by other price patterns or bullish candlestick developments.

The three-month chart of U.S. Steel (X) included a marubozu with very small upper and lower shadows, and that session appeared at the bottom of the trend. It also signaled the beginning of a strong uptrend that lasted more than two months before a new downtrend reversal occurred. The marubozu was the first indicator of rising prices, and it led to an upside breakout above 50, which became new support. This new trading range remained intact beyond the charted period.

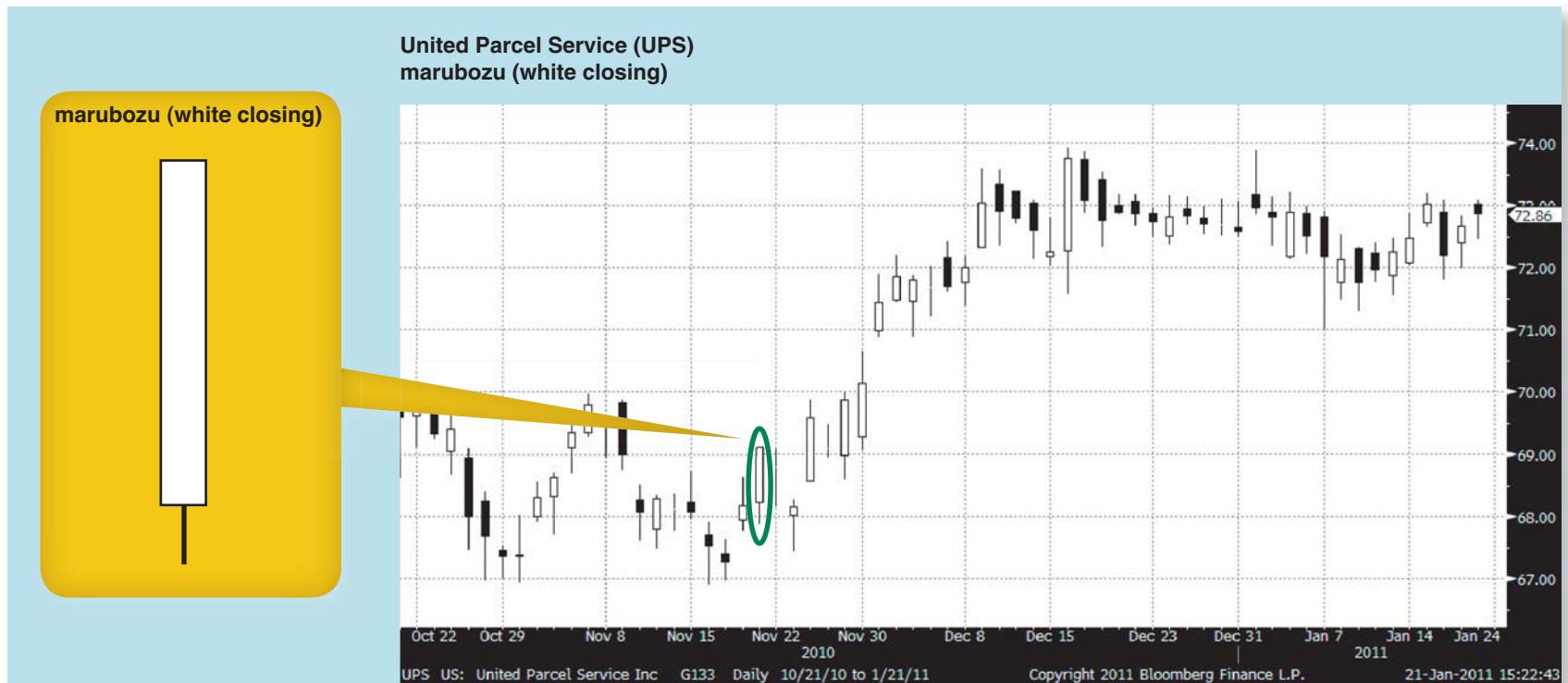


**marubozu (white closing)** a long white session with no upper shadow and a very small lower shadow. It most often is found within an uptrend, when it provides a continuation signal. When it appears after a period of downward price movement, it is a strong reversal signal, especially if confirmed independently by other candlestick patterns, gapping price movement turned upward, or technicals such as failed tests of support.

The very small lower shadow provides a clue that sellers were able to move price only slightly below the

open, but could not overcome buyer momentum. The price trend moves up to close at the session's high, a very strongly bullish indicator.

A good example of the white closing marubozu was found in United Parcel Service (UPS). At the time it appeared, it was not certain whether there was a reliable enough indication to act upon; however, note the emergence of a white opening marubozu two sessions later. This confirms that an uptrend is underway, with even more confirmation soon after with a strong upward price gap.



**marubozu (white opening)** a variation of the long white candlestick session, consisting of a bullish real body, no lower shadow, and a small upper shadow. This is found as a continuation indicator in an existing uptrend, or as a reversal when it follows a downtrend, especially when confirmed with additional bullish signals.

Continuation occurs only slightly more than half of the time, making it a questionable continuation indicator, but a much stronger reversal signal. It provides better confirming proof when reversing a downtrend trend and accompanied with tests of support, upward

price gaps, or other reversal patterns. It also serves as confirmation of other signals, notably reversal trends. The strength of this pattern is demonstrated in the fact that price never falls below the opening level. Price does move above the close, however, so the session closes somewhat below its high.

In the case of AT&T (T), a downtrend reversed after a failed test of support at \$28.00, followed by a price gap. The white opening marubozu confirmed the reversal and the beginning of the uptrend. The uptrend did not end until its own failed breakout above resistance of \$29.50 and subsequent retreat.



**KEY POINT:**

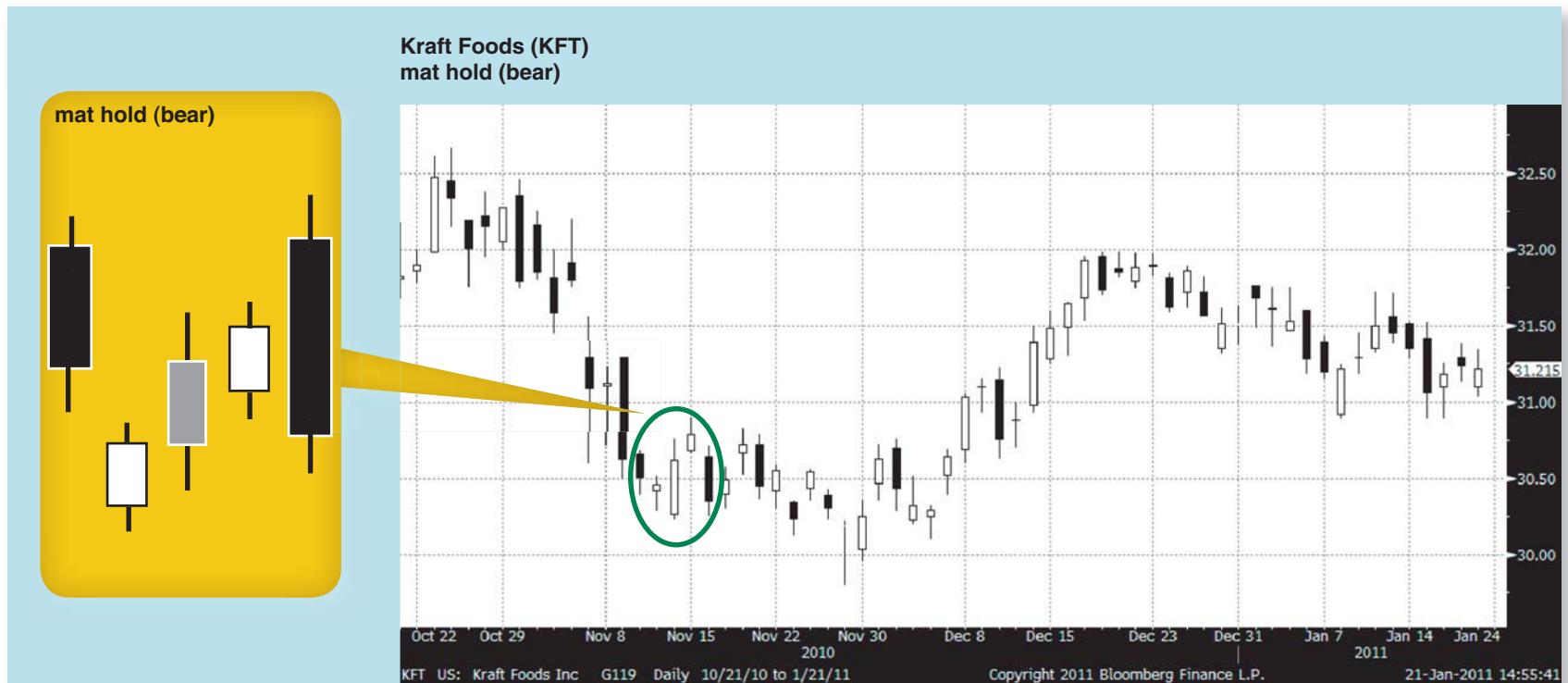
The mat hold is a five-session indicator that almost always represents continuation of the prevailing price direction. The combination of a five-session pattern and continuation (versus reversal) is unusual.

**mat hold (bear)** also known as the falling three methods, this is a five-session bearish indicator. It is a continuation pattern appearing within a broader down-trend.

It consists of a long black candlestick, a down-side gap, and then three rising sessions. The second and fourth are white and the middle, third session may be white or black. Finally, the fifth session ends closing below the price of the preceding session; the

downtrend is then expected to continue. As a strong bearish continuation pattern, it is an unusual pattern because it involves three rising sessions in the middle.

Kraft Foods (KFT) exhibits a typical mat hold bear pattern. Note the longer-term bear trend in effect for one month prior, and continuing for three weeks after the pattern.



**mat hold (bull)** also called the rising three methods, a variation of the mat hold that is found within a broader uptrend in price. It is a strong bullish continuation signal that succeeds nearly four out of five times it is found. It consists of a long white candle in session one, followed by three sessions opening above and then falling. They may all be black or the middle (third session) may be white. The last session opens as another long white session and closes higher than the preceding session, demonstrating continuation.

The chart of Alcoa (AA) provided an excellent example of the bullish mat hold. It was found in the middle of a longer-term uptrend and lacked only the long white first session; it was a more typically ranged session within the uptrend. Even so, sessions two through five completed the indicator with a closing white marubozu, an exceptionally strong bullish signal and confirmation of the mat hold's bullish interpretation.



**KEY POINT:**

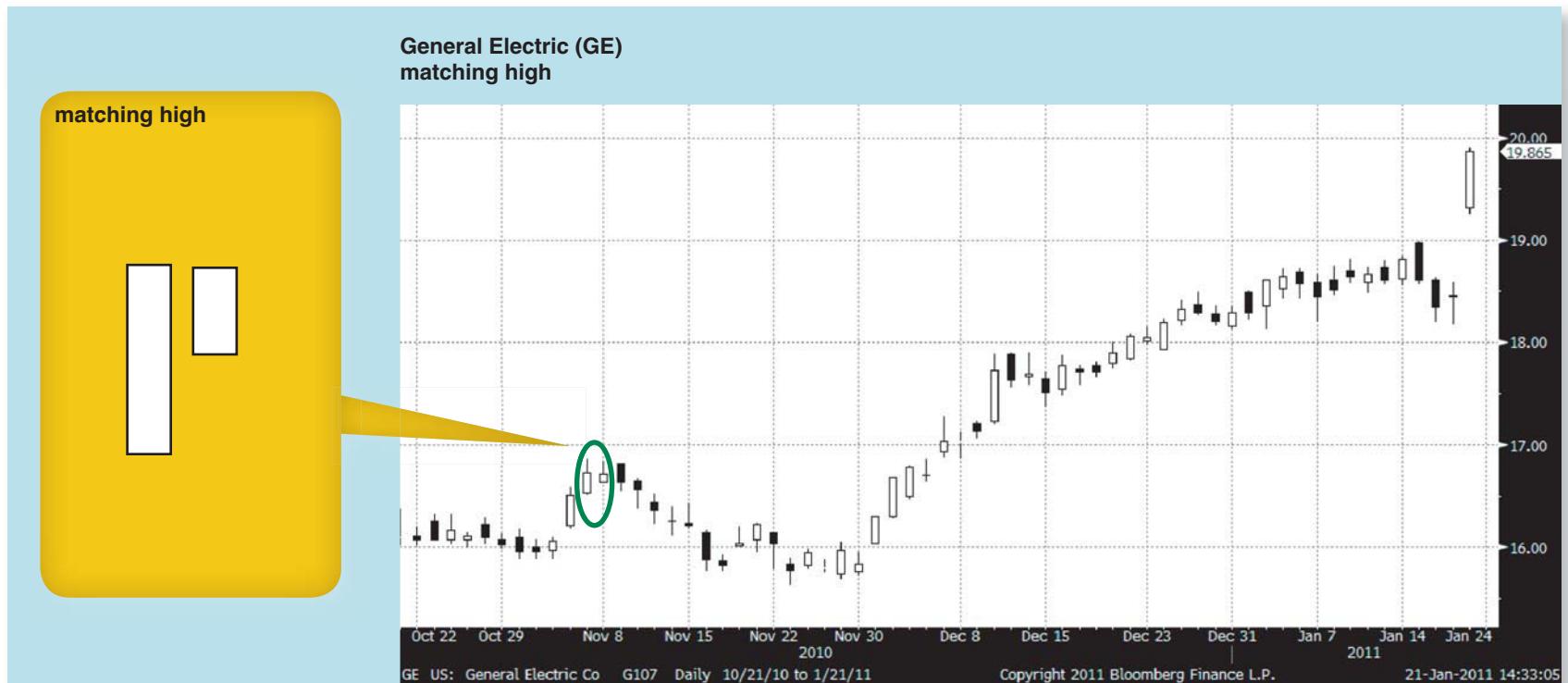
Matching patterns are easily overlooked, especially if shadows are also present. These may obscure the importance of lost momentum among buyers (matching high) or sellers (matching low), foreshadowing a reversal and new, opposite trend.

**matching high**

a bearish reversal sign, unusual in the sense that it consists of two white sessions. The important feature is the matching high closing prices of both sessions as well as its location at the top of the uptrend. It signals reversal. Ideally, no upper shadow is found; however, when the matching high does include an upper shadow, it does not negate the signal. The strength of the reversal is found in the hidden gap between the close of session one and the opening of session two. The retreat followed by

matching close is a strong signal that buyer momentum has been lost.

The chart of General Electric (GE) provided a good example of this reversal. The uptrend was short and followed a period of sideways price movement in a very narrow range of approximately one-quarter of a point. The uptrend ended abruptly with the matching high, and was followed by a downtrend lasting nearly three weeks and failing to break through support, before a stronger uptrend appeared.



**matching low**

a bullish reversal signal involving two black sessions that close at the same price. These may or may not include lower shadows. However, the double black sessions include a hidden gap, with the second session opening higher but retreating. This is a subtle but strong reversal, a sign that sellers do not have the momentum to push prices lower.

The chart for Home Depot (HD) provided a very significant matching low. It confirmed the failed test of support, anticipating a reversal and uptrend. However, the uptrend did not occur immediately. The matching low was followed by seven sessions that concluded with a failed breakout below support and then a very strong uptrend.

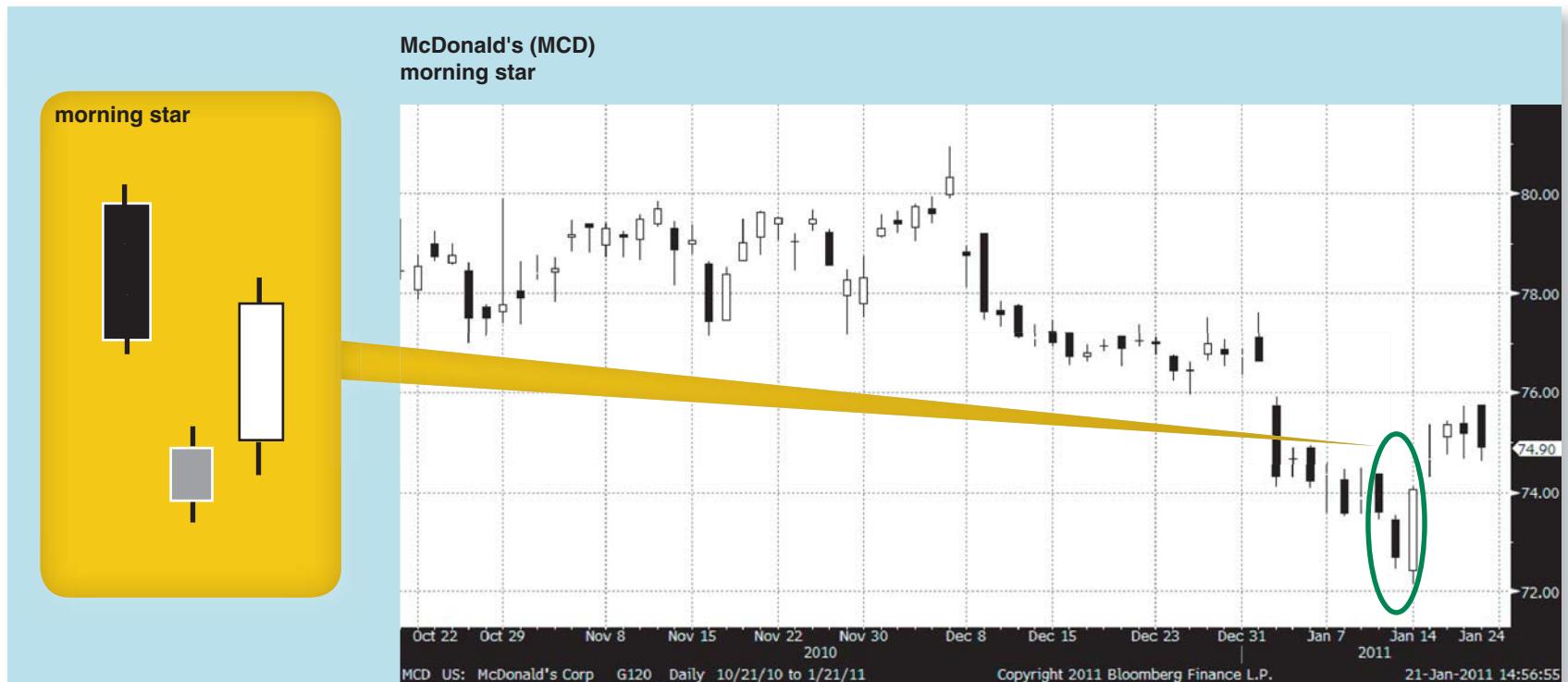


**KEY POINT:**

The morning star is a bullish reversal sign and the opposite of the bearish evening star.

**morning star** a bullish reversal signal involving three sessions. To be valid, this should be found after a strong downtrend. It appears at first like a continuation of the downtrend, but then reverses. The first session is a black candle, ideally a long black. The second may be either white or black. The third is white and begins the reversal by closing above session two and into (or above) the body of session one.

The chart of McDonald's (MCD) met the criteria toward the end of the period shown. This was followed (in the period after the charted period) by an uptrend. Confirmation of likely reversal was found in sessions two and three, which formed a bullish engulfing pattern. This is typical of a confirming signal involving two indicators, one located within the other.



**KEY POINT:**

The near-doji is very common and may offer nothing of significance. However, it may also serve as part of a larger indicator for reversal or continuation. This session has to be studied in context.

**near-doji**

any candlestick with an exceptionally narrow body. The real body may be either white or black; and a near-doji may include an upper shadow, lower shadow, both, or neither. The significance of this single session may be great, especially to the degree that it provides a segment of a larger signal. However, near-doji sessions are common and may offer little or no importance. The meaning of a near-doji relies on placement within a trend, context with other sessions appearing

before and after, and the kind of trend underway (bullish, bearish, or sideways).

The chart for Apple (AAPL) included seven identified near-doji sessions. As this chart indicates, the near-doji session is common. It might have little or no significance as a single session or, as part of a multiple-session indicator, the near-doji serves as a part of many reversal or continuation patterns.



**KEY POINT:**

The on neck is most significant when found within a current trend, and it is a strong signal for continuation of that trend.

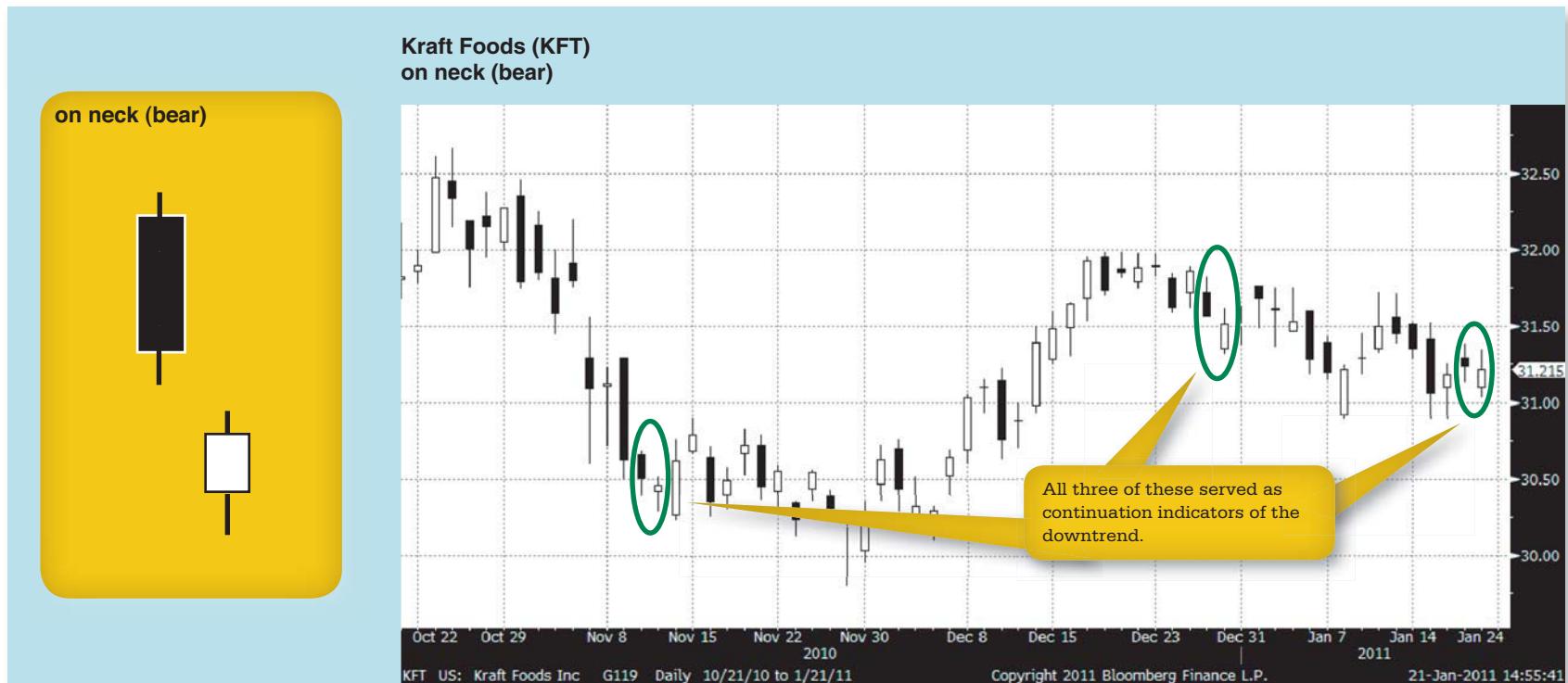
**on neck (bear)**

a two-stick indicator normally appearing within a bear trend and providing a continuation signal. The two sessions form a gap. The first is black and the second opens below the first session's close, is a white and closes below the close of the first session.

The indicator is not especially strong and may show up in a relatively slow or weak downtrend. The key

confirmation feature is found when the current down-trend continues in sessions following the bearish on neck.

The pattern appeared three times in the three-month chart of Kraft Foods (KFT). All three met the criteria, especially that it served as a continuation signal. The last one appeared at the very end of the period charted; however, the downtrend did continue into the period immediately following the time shown.



**on neck (bull)** a two-session bullish continuation signal. To qualify, it must show up within a current uptrend and be confirmed by its continued upward direction. The first session is white, and is followed by an upside gap and then a black session. The gap is extended by the real body of the second session. The uptrend itself does not need to be strong or long-lasting to qualify for this continuation; however, the larger the first session in this indicator, and the larger the gap, the more likely that continuation will be confirmed. The sizes of upper and lower shadows also determine the strength of the signal as well as the effect of both bulls and bears in deciding whether continuation occurs or the signal fails.

An on neck appeared in the chart for Toyota (TM). At first it appeared quite weak for two reasons. First, very little uptrend preceded the signal, so analysts would not be likely to place much value in the on neck development. Price had been moving sideways for a full month with no signal of growing momentum on either side. Second, both sessions were very narrow in range; a stronger and more encouraging indication exists when the real bodies are much longer, preferably long sessions, and when the shadows are longer as well. However, subsequent price movement was strong in an upward trend for three weeks, demonstrating that even minimal signals may provide strong signals.



**KEY POINT:**

An outside indicator is a three-session reversal signal, and an especially strong one. It leads to reversal about three out of every four times.

**outside down**

a strong three-session bearish reversal signal. The first two sessions form a bearish engulfing pattern, and the third session is black and opens within the body of the second, then closes lower. The third, black session confirms the bearish engulfing and makes the three sessions quite strong, leaning toward a likely reversal. The reversal itself may be further confirmed if the pattern tests resistance without breaking through, or by breaking through and then immediately retreating.

A good example of this bearish reversal was found in the three-month chart of iShares Silver Trust (SLV). This was an especially strong example due to the long black marubozu formed in the second session. The formation also broke through resistance but retreated immediately. The test of resistance repeated three weeks later and was a weaker attempt, leading to a downtrend lasting the remaining month.



**outside up** a strong bullish reversal signal consisting of three sessions. The pattern precedes bullish trends about three out of every four times it is found.

The first two sessions form a bullish engulfing pattern, one of the strongest reversals found on price charts. The third session, a higher-closing white session, confirms the bullish engulfing while clearly seeing the path for a new uptrend.

In the case of General Mills (GIS), the trend exhibited a strong downtrend from the beginning of the period charted and for six weeks. At the conclusion, momentum fell as prices evolved sideways for three weeks. However, unlike some sideways patterns with very low volatility, GIS also experienced numerous long candles, a signal that some kind of movement was going to follow. Once the bullish engulfing appeared, the indication was quite clear. As this developed into the outside up, it

also had a strong gap between sessions two and three. Several key aspects of this are worth noting. The pattern could be viewed as only a bullish engulfing with a strong gapping action to follow; however, if viewed as a modified outside up development, the reversal signal is also quite strong.

The outside up also set a new support level as prices moved up strongly. This was tested several times over the following period at about the \$35.40 level. The volatility was also an important factor; several exceptionally long sessions occurred. The chart concluded with a very convincing bearish harami and in the period following that shown, prices fell very strongly over 10 days before bouncing upward once again. The trend exhibited a struggle between buyers and sellers, making this chart and the period following one of the most interesting examples of how candlesticks predict movement and then confirm it.



**KEY POINT:**

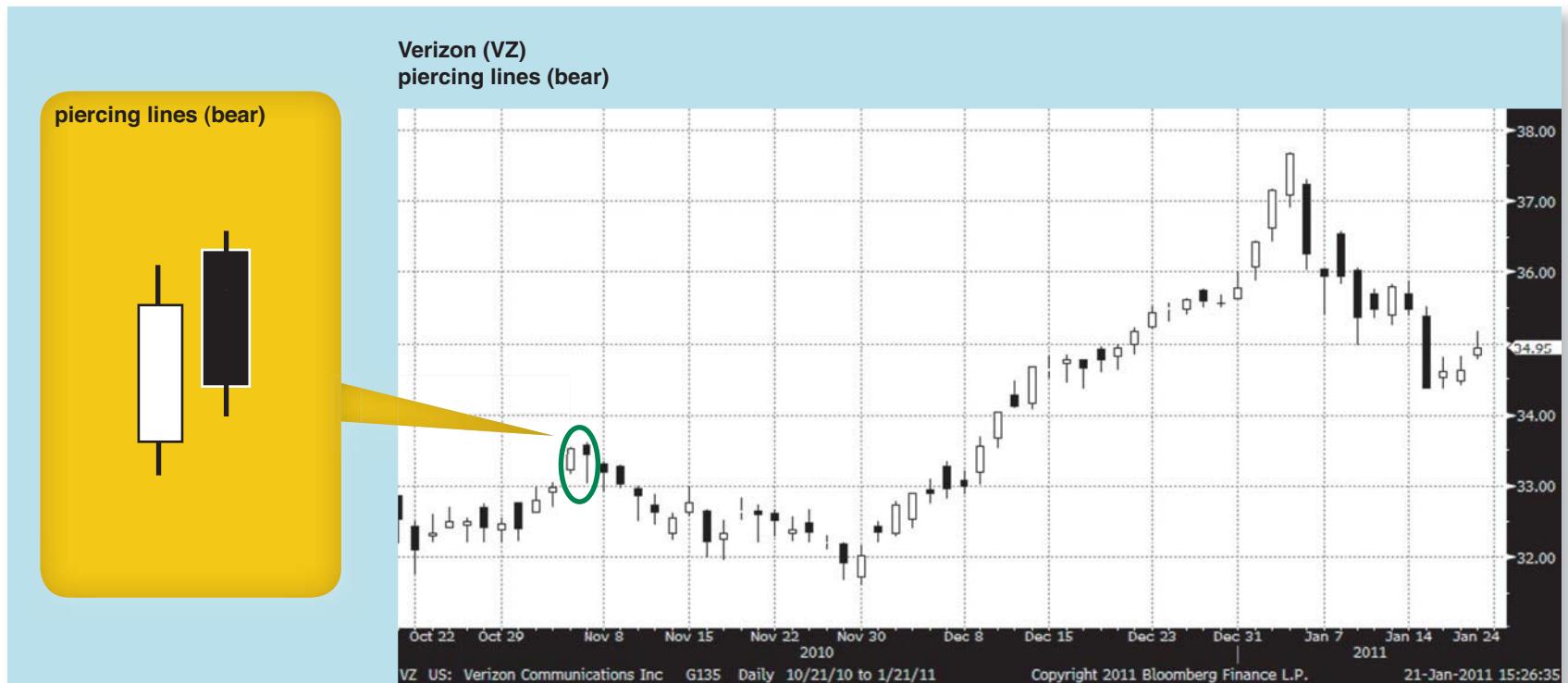
As its name indicates, the second session has to pierce and close within the range of the first session. When this is found after a current trend, reversal is likely.

**piercing lines (bear)** (also called dark cloud cover)

a bearish two-session pattern appearing after an uptrend and anticipating reversal. This may involve relatively short preceding uptrends as well as short reversal and downtrends to follow. However, the stronger and lengthier the uptrend, the more likely the piercing lines reversal will succeed.

Verizon (VZ) demonstrated how this pattern works. A short uptrend led to the piercing lines. Note that the

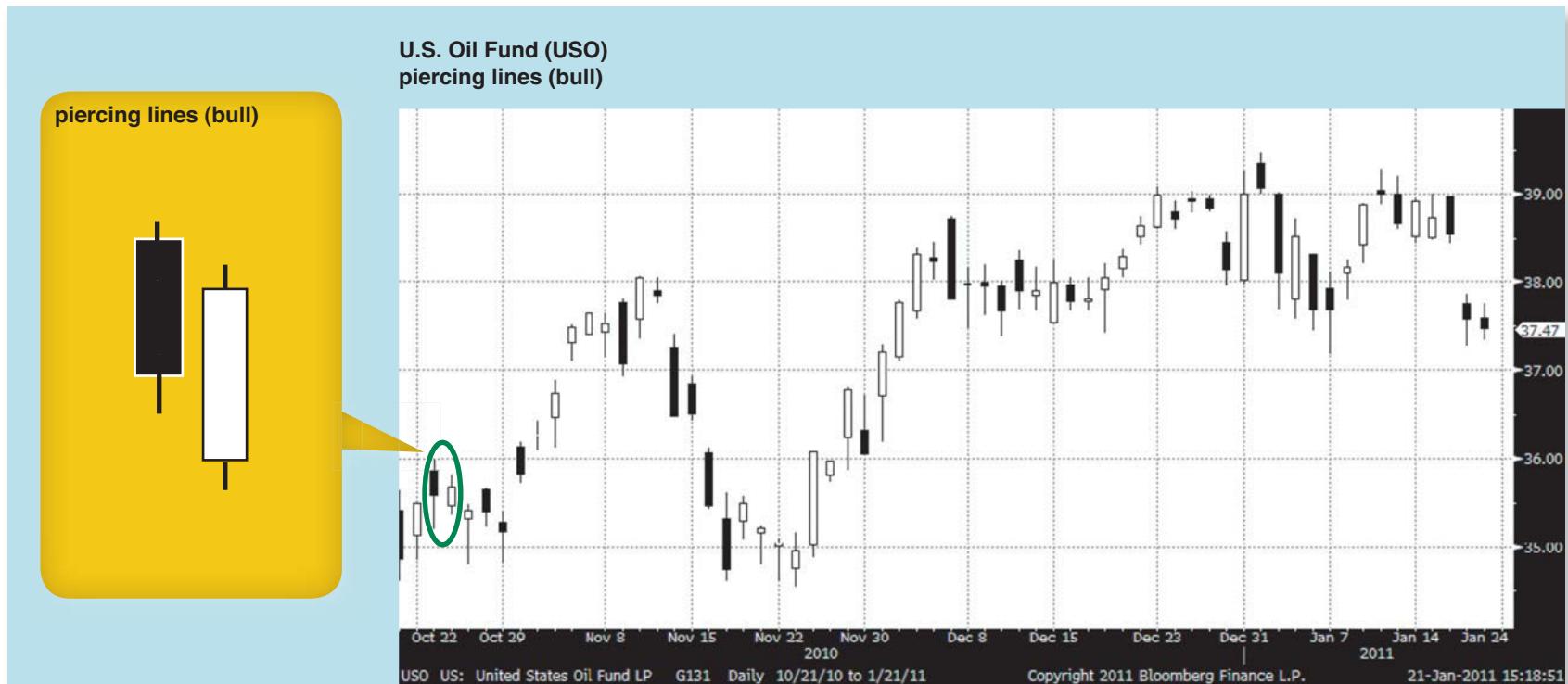
first session closed approximately halfway to the real body of the second session and that the second session formed a hanging man. The second confirmed that the uptrend had ended, and the ensuing downtrend proved the point. Although the downtrend continued for a full month, it was weak; price moved only one and one-half points. In comparison, the uptrend that developed after that also took a month but increased price by six points.



**piercing lines (bull)** a two-session reversal move in which a bearish black session is followed by a bullish white session. The second session opens lower than the close of the first with a hidden gap, and then it moves up to close within the range of the first session's real body.

The ideal example of the bullish piercing lines indicator includes the second session closing above the midpoint of the first session's real body. However, this is ideal. A session whose upper shadow moves above the midpoint also qualifies. As long as the second session closes within the range, the piercing lines has occurred.

The chart of U.S. Oil Fund (USO) begins with a bullish piercing lines signal. It is not particularly strong and, in fact, is followed with a few sessions of uncertainty and even downward-moving action. However, the uptrend does develop four sessions after the piercing lines, and it ends up a short-term but very strong price movement. The uptrend does not end until the bearish engulfing pattern appears, with the long session in the second position.



**KEY POINT:**

Raindrops are the opposite of stars. The names make it easy to remember the difference. Raindrops involve second-session small bodies below the first, and stars consist of the second-session small bodies above the first.

**raindrops** any two-session formation in which a small real body session followed a previous long candlestick session. It may signal reversal or the new direction of a trend after sideways movement.

Raindrops may involve any color in either session. The important determining factor of raindrops is not the color of the real body but the location within the immediate price trend.

The chart of U.S. Steel (X) provided an example of raindrops in a pattern concluding sideways movement, and identifying the start of a downtrend. This can also be interpreted as a bearish neckline, adding strength to the implied direction. The first session is a long black, further strengthening the likelihood of a coming downturn. In fact, that session was the longest candlestick on the entire chart up to that point.



**KEY POINT:**

Rickshaw man is a variation of the long-legged doji with the horizontal line halfway between long upper and lower shadows.

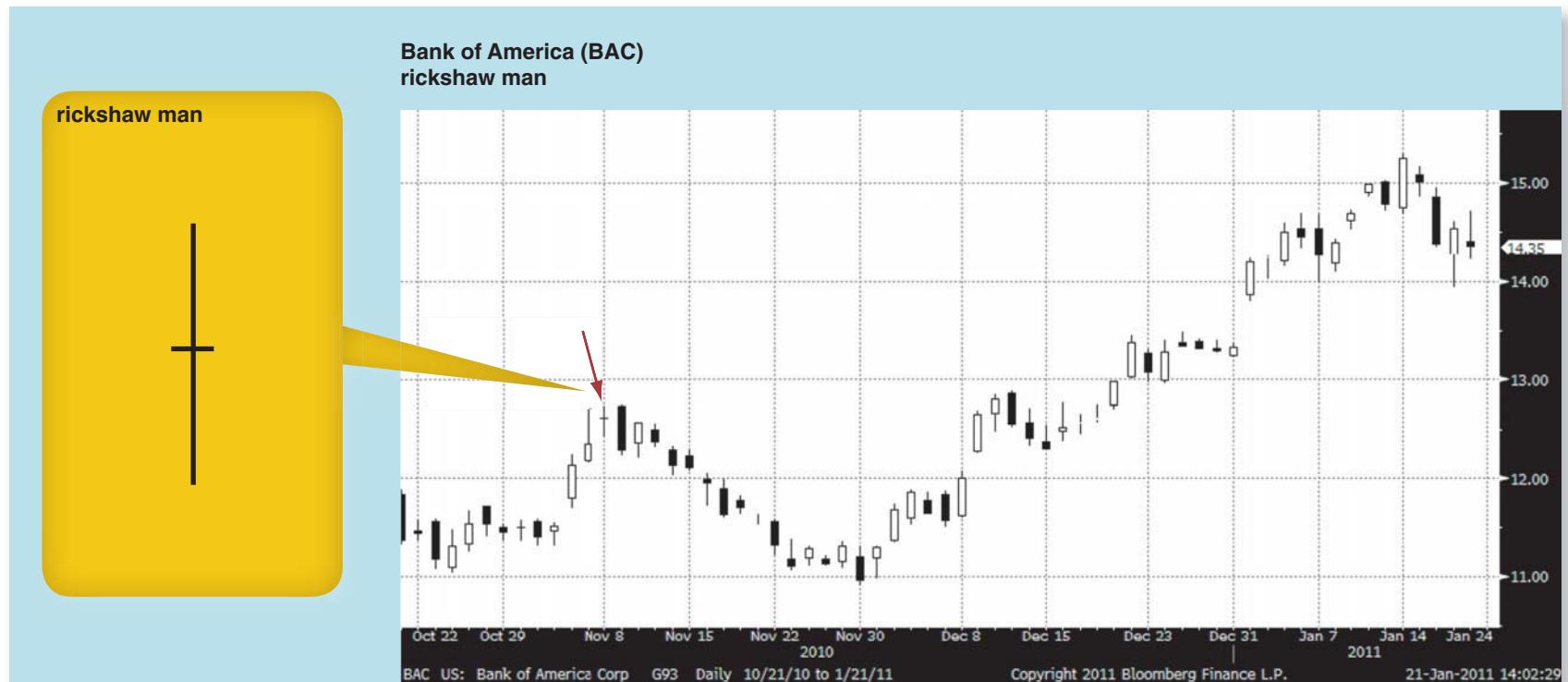
**rickshaw man**

a single session sign similar to the long-legged doji, in which upper and lower shadows are approximately the same length. This places the horizontal doji line at or near the halfway point, whereas the long-legged doji does not require the central placement to qualify. The purest form of this signal occurs when it is an absolute doji and not merely a near-doji session.

The significance of this session is not clear; about half the time it leads to continuation, and the other half to reversal. It is not useful by itself in making a reliable prediction. However, as one form of confirmation, it can be a useful form of secondary information.

The chart of Bank of America (BAC) provides a good example of rickshaw man serving as confirmation. The

preceding day and the rickshaw man day form a perfect example of the bearish doji star. This was at the conclusion of a very strong series of upward sessions and gapping price action, a signal that prices may have moved too far and too quickly. The long black session that followed the rickshaw man session was another signal of reversal. That session was followed by a bearish harami pattern that, although small and not especially strong, added to the body of evidence that the uptrend was over. In fact, the combined signals were correct. Prices declined for the next two weeks before pausing and then moving upward once again.



**KEY POINT:**

The rising three methods is also called a bullish mat hold. It is an unusual formation in the sense that it requires five consecutive sessions; most formations include three or fewer.

**rising three methods**

also called a bullish mat hold, a complex continuation pattern with five separate sessions. The first is a long white session following an up-trend. This is followed by three sessions, each closing lower than the one preceding it. These may all be black or the middle of the three can be white. The final session is a white candle that closes above the closing price of the first session. This formation is a pause in the up-trend, but the final, white session confirms that continuation is underway.

The chart of Cisco Systems (CSCO) is unusual in two respects. It includes two separate rising three methods

patterns in proximity. These confirm one another even though the examples themselves are not particularly strong. The first concludes a period of sideways movement after a very large decline in price with a large downside gap. The second rising three methods is found a few sessions later.

The second of the two has four middle sessions instead of three. Even so, it conforms to the overall pattern criteria. Most important among these is that the concluding white session must close higher than the close of the first session in the series.



**KEY POINT:**

The separating lines is characterized by two sessions moving within opposite directions. However, this is not a very reliable signal, and it may mean either reversal or continuation.

**separating lines (bear)**

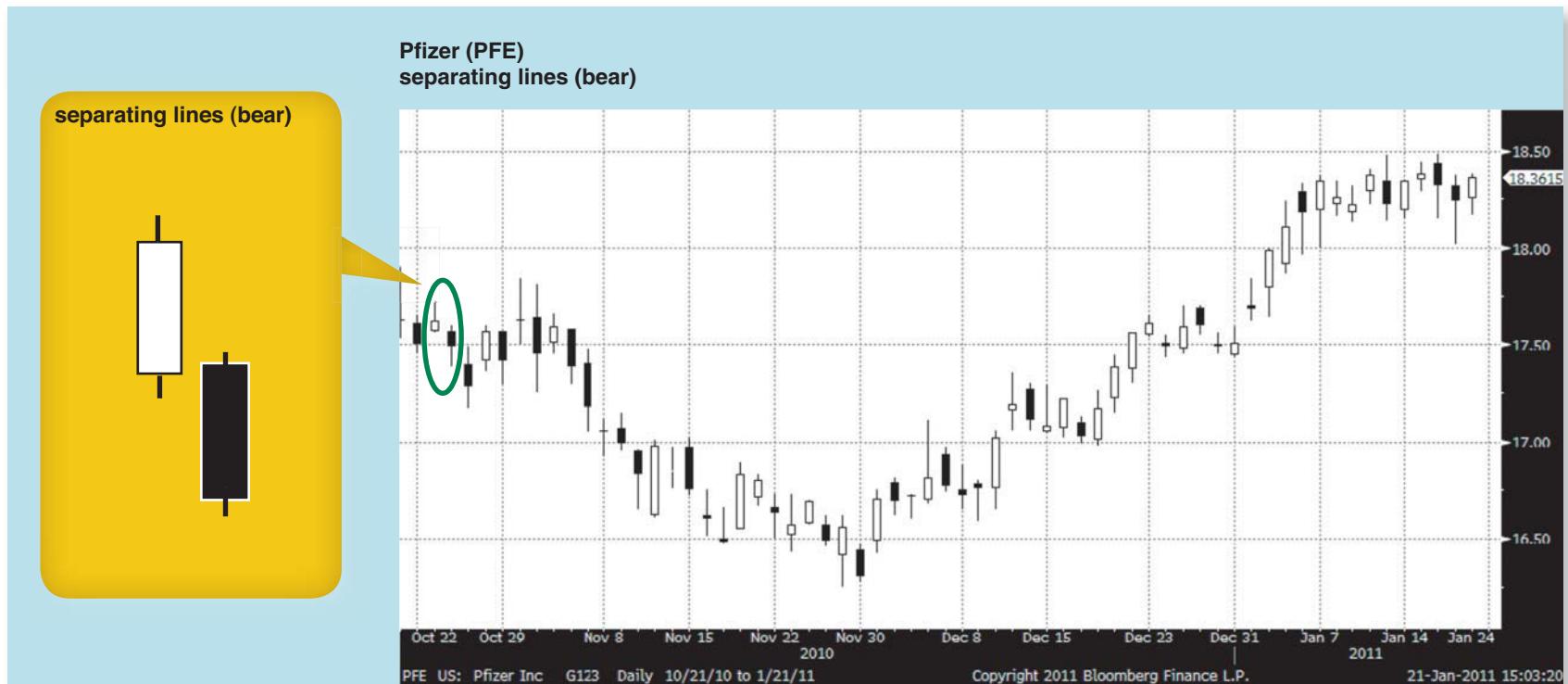
a two-session indicator that is most often found as a continuation signal. It may also appear at a point of reversal or as the ending mark of sideways movement. The first session is white and the second is black. A considerable hidden gap is a part of this sequence, stretching from the top close of session number one, to the lower opening of session two. Accordingly, the longer the first session, the stronger the downtrend indication.

The second session is expected to open at or close to the opening of the first session, but then moves downward, indicating a clear downward momentum. The indicator can be confusing when it shows continuation. The white candlestick within a downtrend may signal reversal, but the second session contradicts this. However, because of the uncertainty of what it means for the current downtrend, the separating lines is not a strong signal. Before relying on the implied continuation, independent confirmation should be found. Seek a continuation of the downtrend; if the following day also gaps downward, that is a very strong confirmation signal.

For example, the chart of Pfizer (PFE) begins with a bearish separating lines indicator and then confirms its

meaning with a downside gap and downward session immediately afterwards. The trend is confusing, however, because the price level then rises for several sessions before the downtrend does finally kick in. Further confusion is found in the contradictory bullish harami that appears just before the downtrend starts. This contradicts not only the preceding bearish separating lines, but also the downtrend itself.

This is an example of an initial weak pattern, unclear price action that follows, and an unusual failed bullish harami leading to a downtrend. None of the indicated patterns come through as a chartist would expect. This emphasizes the point that confirmation is always required, and also that even a strong signal with its own confirmation is not a guarantee that the signal will prove to be accurate. The delay in realizing the bearish separating lines, the failed bullish harami, and the apparent struggle for control between buyers and sellers (witnessed by the long shadows on the doji session and the first harami session) all make this an example of why at times, additional confirmation (or contradiction) is essential.



**separating lines (bull)** a two-session bullish continuation signal, whose reliability is low. It usually appears within the existing uptrend, but may also be found as a reversal or a current downtrend or the end of a sideways price trend.

The signal is important because the two sessions move in opposite directions. The initial black candlestick is followed by a hidden downside gap. The second white session opens at or close to the opening price of the first session, and then moves up instead of down.

Although the bullish separating lines signal is supposed to work as a continuation signal, American Express (AXP) demonstrated how it can also be a sign of reversal. The signal showed up at the bottom of a 10-day downturn but introduced a two-month uptrend. Confirmation was found six days later in an especially strong bullish engulfing pattern. Note the exceptionally long white session in the second position of the engulfing, which was the beginning of a very strong uptrend and confirmation of the bullish separating lines found a few sessions earlier.



**shadow (lower)**

the extension underneath a candlestick's real body. The lower shadow often is significant in identifying changes in momentum, either on a single candlestick or as part of a larger indicator. The shadow represents the difference between the session's closing price (bottom of the real black body) or opening price (bottom of the white real body) and the lower end of the trading range (lower shadow's bottom level). The longer the shadow, the more importance it holds.

A long lower shadow indicates that during the sessions, sellers attempted unsuccessfully to move the price level lower. The price declined but then moved back to close higher. This becomes especially important in reversal indicators when the lower shadow meets or passes below the support level. A failed breakout is very important because the loss of momentum often precedes a strong upward move immediately afterward.

**shadow (upper)** the extension above a candlestick's real body. The upper shadow may be one symptom of changes in momentum on a single candlestick or as part of a larger indicator. The shadow is the difference between the session's closing price (on a white candlestick) or opening price (on a black candlestick) and the extent of the trading range (top of the upper shadow). The longer the shadow, the greater its importance.

A long upper shadow signals that buyers attempted unsuccessfully to move the price level higher. The price rose but then moved back to close lower. This becomes especially important in reversal indicators when the upper shadow meets or passes above the resistance level. A failed breakout is very important because the loss of momentum often precedes a strong downward move immediately afterward.

**KEY POINT:**

The shooting star is an inverse hammer with an upper shadow that must be at least twice the length of the real body.

**shooting star**

a single session candlestick of either color, having a small body and a long upper shadow (with little or no lower shadow). The shooting star appears at the very top of an uptrend. It identifies the reversal turning point, with the upper shadow a signal that buyers tried to move the price higher but failed, having lost momentum.

The shooting star must also be preceded with a gap from the close of the previous session, according to some chartists. However, others acknowledge shooting stars that form at or below the previous session's close. The gap makes the reversal potential stronger, but it is

not essential in the signal's criteria. It is the same formation as an inverse hammer with one distinction: The shooting star's upper shadow should be at least twice the length of its real body.

The chart of 3M (MMM) starts out with a clear shooting star session. The preceding period (not shown) was represented by a very strong two-month uptrend, and the shooting star was the highest point before reversing. Confirmation was found in the two sessions immediately after the shooting star, forming a two-session bearish neck line. Immediately after, a very long black candle provided further confirmation of the new downtrend.



**KEY POINT:**

There are four variations of the side-by-side, which can be confusing. These are white and black, and bull or bear of each. A good way to distinguish them is by looking at the four patterns together and observing their differences.

**side-by-side lines (black bear)** one of the four side-by-side patterns, consisting of three black sessions and usually providing a continuation signal. The first is followed by a downside gap and sessions two and three are approximately the same size from open to close. Confirmation may consist of testing support level successfully, followed by continuing downward price movement, by gapping action, or by secondary candlestick bear formations. The side-by-side may also confirm other developments occurring immediately beforehand, such as

strong downside gaps, other candlestick patterns, or as part of other technical indicators.

The three-month chart of Merck (MRK) ends with a black bear side-by-side pattern. This followed an unsuccessful attempt to break through resistance, a downward movement, and a very large downward gap. Immediately before the side-by-side, a long black candle further provides evidence of a continuing downtrend. The period following that shown also demonstrated an ongoing downtrend, continuing for two additional months.



**side-by-side lines (black bull)** this is a variation of the side-by-side pattern that is a continuation indicator within an uptrend. It begins with a white session, and then an upside gap. Next are two black days, followed by a resumption of the uptrend. Ideally, this includes an upside gap and then more white sessions. However, it is possible that a delay will occur between the conclusion of the side-by-side and the expected gapping action.

The consecutive black sessions in positions two and three are easily misinterpreted as an end to the uptrend; however, if traders wait for confirmation, the true significance of the side-by-side becomes clear.

The chart of Bank of America (BAC) includes a short but convincing example. It occurs during a long-term uptrend that began one month earlier. Given the uncertain nature of the preceding sessions during that month, traders might have had difficulty determining how long that trend would continue. In fact, the three-session decline ending December 15 looked like a clear reversal, but the trend continued in spite of this failed signal. The side-by-side was not as strong as traders would like to see, although the requisite gap between sessions one and two did appear. It took two additional sessions before a convincing upside gap occurred, but once it did, the continuation was clearly confirmed.



**side-by-side lines (white bear)** a variety of the side-by-side formation that contains three sessions, a black candle, downside gap, and two white sessions. The two white sessions should be approximately the same length. These are expected to be followed by further downside movement, making it a continuation pattern.

Procter & Gamble (PG) displayed as white bear side-by-side shortly after the downtrend began. In this

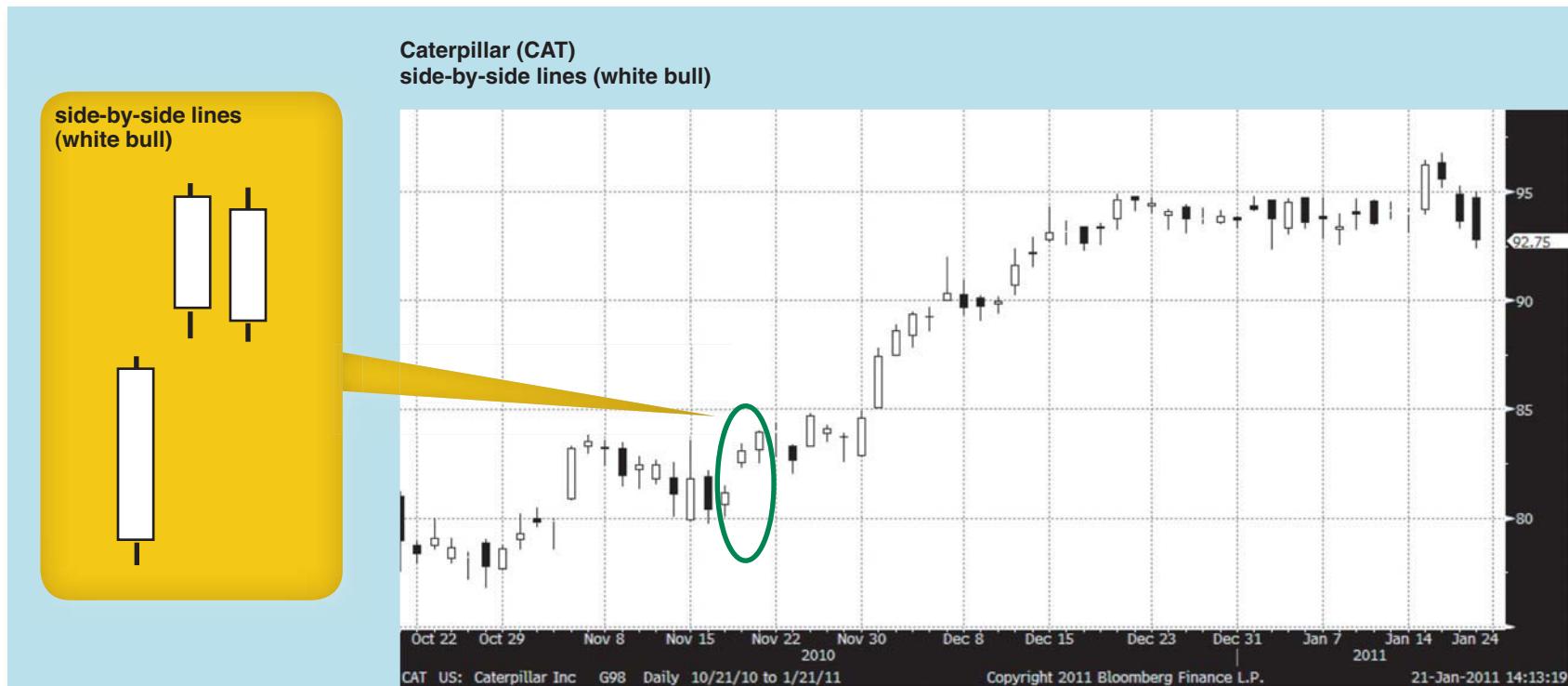
situation, the side-by-side confirmed the downtrend itself, which was not a strong reversal to begin with. The side-by-side and downtrend were further confirmed by the long black candle appearing two sessions later. Even so, the entire downtrend was not as clear as traders like, and contained a series of upward reversals, all of which failed until the end of the downtrend three weeks later.



**side-by-side lines (white bull)** a continuation pattern consisting of three white sessions. The first is followed by an upside gap, and sessions two and three are expected to be approximately the same length. This pattern may be confirmed by immediate or delayed resumption of the uptrend; it also serves as confirmation of the initial uptrend when it appears near its beginning.

Caterpillar (CAT) provided an example of a confirming side-by-side white bull pattern. It appeared three

weeks after the uptrend began. The trend had paused and moved into a sideways price pattern, making the trend very unclear. However, the side-by-side settled the question and predicted a resumption of the uptrend, even though all of its sessions were narrow. The uptrend resumed a week later, confirming the indicator provided by the side-by-side.



**KEY POINT:**

The spinning top sounds very similar to the long-legged doji and rickshaw man. The main distinction is that those are doji sessions, and spinning top has a real body, forming as a near-doji.

**spinning top**

a single-session indicator with either white or black real body. The criteria include a fairly small real body located approximately in the middle of the session, plus long upper and lower shadows. It may offer continuation or reversal, depending on where it appears in a trend and what forms of confirmation are also found. The shadows should be as long as the real body, and preferably longer.

Reversal is most likely when the spinning top appears after a long trend and contains a shadow hinting at loss of momentum. So, in a downtrend, a longer lower shadow indicates that seller momentum has ended; and in an uptrend, a longer upper shadow indicates that buyer momentum has fallen. When the spinning top is found within a trend and the shadow favors the direction of that trend (long lower shadow during the uptrend or long upper shadow during a downtrend), it is more likely to work as a continuation indicator.

In the case of Sears Holdings (SHLD), six spinning tops appeared over three months. The first was a continuation of the downtrend appearing at the very beginning of the period. The second and third showed up next to one another and provided a very strong reversal indicator. These followed on the preceding two sessions consisting of two long candles and forming a bullish piercing line indicator (long black followed by lower-opening and higher-closing long white). The fourth spinning top ended a three-week sideways movement. The likelihood of an uptrend was signaled by the very long lower shadow, indicating that sellers tried unsuccessfully to move the price lower. The fifth was a continuation sign following a long black and with a very extended upper shadow, indicating a lack of buyer momentum. The final spinning top was a continuation of a newly set bearish trend. It confirmed the bearish move preceding a black session following a strong upside gap.



**KEY POINT:**

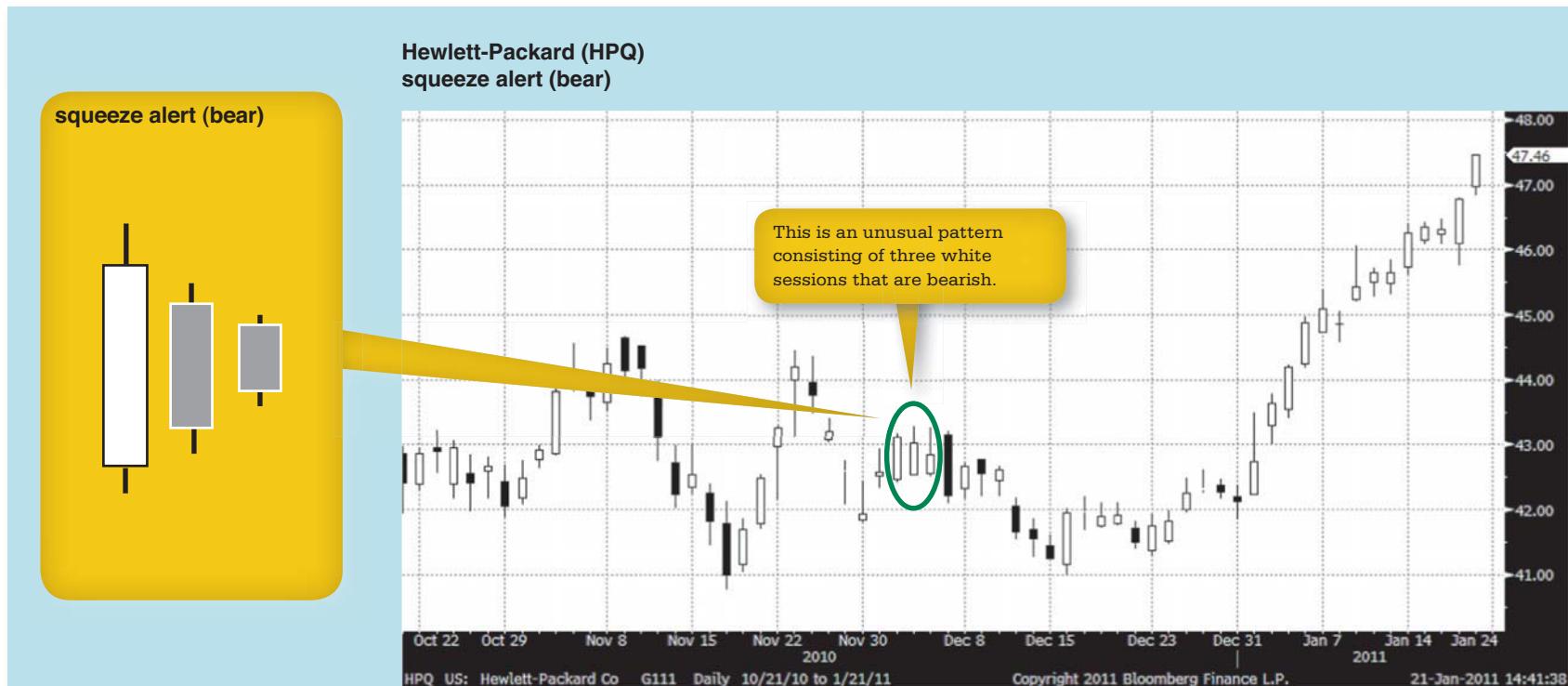
The squeeze alert is one of the strongest reversal indicators. It is unusual in two respects: The first session is of a color opposite the indicated reversal, and sessions two and three may be of either color.

**squeeze alert (bear)** a three-session pattern offering a very strong reversal forecast. It consists of a white session followed by two sessions of either color. Session two opens and closes within the real body of session one, and session three opens and closes within the real body of session two. The result is the squeeze, an open/close declining range over the three days.

The squeeze alert is rare, but when it appears it should be treated as one of the most compelling reversal signals. It may be easily missed when the second and third session candlesticks are of mixed color. Although the shadow sizes do not affect the strength of this pattern, a

short upper shadow in session one adds to the reversal strength. Confirmation may take a number of forms, with the most compelling in the form of long black sessions, downward gaps, and other reversal signals.

Hewlett-Packard (HPQ) demonstrated this kind of reversal after a two-week uptrend. The trend had paused and retreated to fill gaps after a very fast upward price movement, and then it seemed ready to resume. However, the appearance of the bear squeeze alert changed this assumption and led to a two-week downtrend. The indicator was confirmed immediately with a long black candlestick in the session immediately after the squeeze.



**squeeze alert (bull)**

a three-session reversal indicator, appearing after a downtrend and forecasting a turnaround and new uptrend. This is one of the strongest reversal patterns. The first session is black, and sessions two and three may be either white or black. This is easily overlooked, especially when the three sessions consist of mixed colors. However, it should not be ignored.

The bull squeeze alert may confirm signals of slowing momentum, and it may be confirmed by subsequent long white sessions or gapping action. The squeeze alert is especially strong when it also appears while support is being tested.

An example of this pattern was found at the bottom of a downtrend for Microsoft (MSFT). The initial long black marubozu at first appeared to signal a continuation of the downtrend. However, the smaller white sessions that followed contradicted this. In addition, the formation appeared right at support, and the session that followed included a long lower shadow that dipped below support and then retreated substantially to the top of the white session. This confirmed the bullish squeeze alert and predicted the strong uptrend that began the following day. The three white sessions, each gapping higher, led the three-week uptrend predicted by the squeeze alert.



**KEY POINT:**

Stars and raindrops have the same attributes and are distinguished by placement of the second session. Stars appear above and raindrops appear below.

**stars**

a two-session indicator consisting of a second session appearing after an upside gap. Both sessions may be of either color. Because stars may serve as either reversal or continuation and often become part of a larger indicator, their reliability is not great. They are worth looking out for, however, as they may answer questions about the uncertainty of a current trend.

Exxon Mobil (XOM) experienced a long series of very narrow sessions, indicating very little momentum among both buyers and sellers. In this situation, the trend itself was questionable. However, it had inched

upward over a period of one full month. During the 22 sessions, nine (or 41 percent) were doji days and most of the rest were near-doji. This is unusual, and provides little indication that traders can act upon. It was then that the two white sessions appeared, forming a stars indicator. Because both were white and the first was the longest session in a month, it was more likely to forecast continuation than reversal. This was the case; the uptrend continued with greater strength through to the end of the charted period and with sessions of greater range than those appearing prior to the stars.



**KEY POINT:**

The stick sandwich is usually described as a bullish reversal signal. However, it provides bearish continuation about half the time, so the signal is not a reliable action initiator.

**stick sandwich**

a three-session pattern with black candlesticks in sessions one and three, and a higher white session in the middle. It is expected to appear at the bottom of a downtrend and at or near support. The stick sandwich is a bullish reversal signal. However, it is just as likely to provide bearish continuation. The test is where it appears in relation to the trend and to previously establish support, and which other signals confirm or contradict the stick sandwich.

Chevron (CVX) provided an example of the stick sandwich in a strong position of reversal. It appeared

after a two-week downtrend that exhibited some interim weakness on its trend with price declines but more white than black sessions. The stick sandwich appeared right at support and failed to take prices below. The two white sessions that followed included a gapping attempt to break through support, with an immediate upside gap, which confirmed the reversal aspect of the stick sandwich. This led next to a strong two-month uptrend.



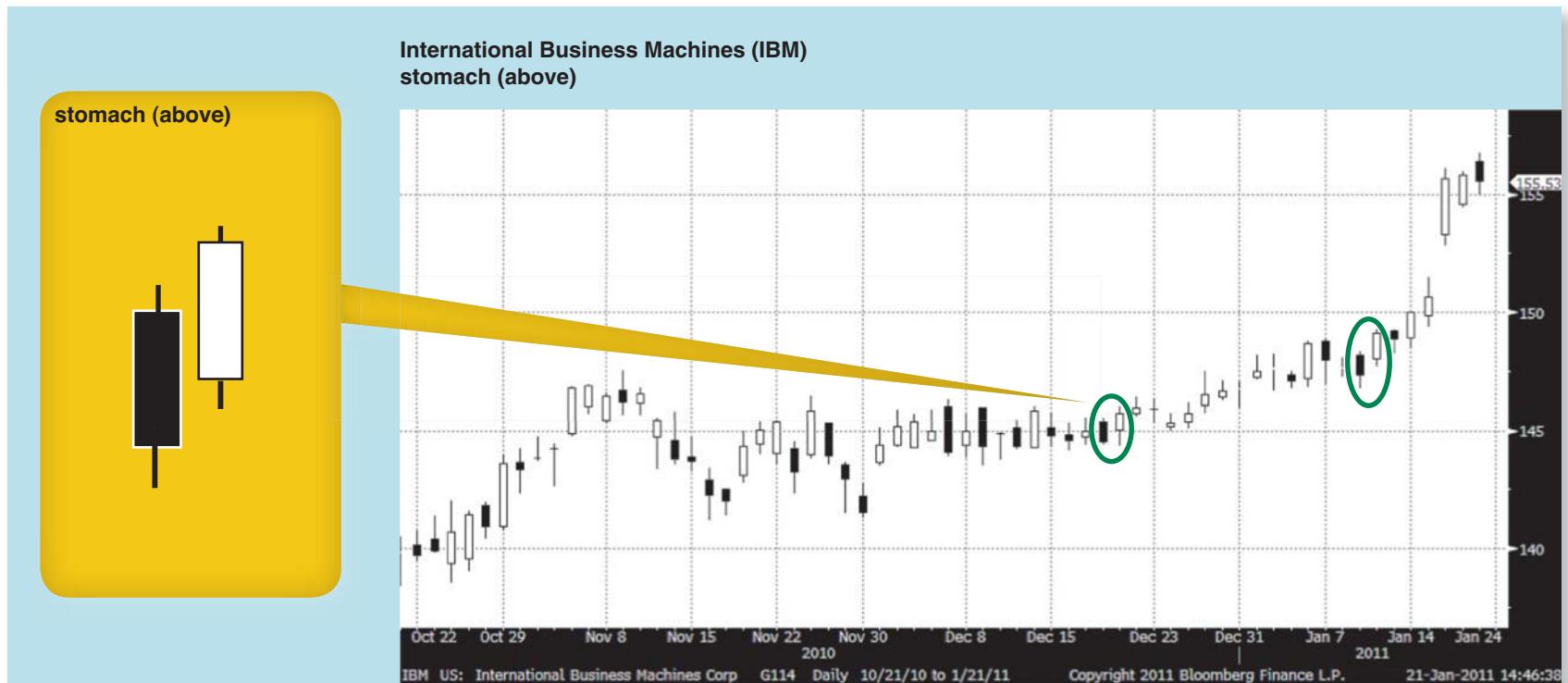
**KEY POINT:**

The stomach moves are among those uncertain candlestick indicators, that may be either reversal or continuation. Because of the uncertainty, confirmation is essential before acting on the stomach signal.

**stomach (above)** a two-stick pattern that often serves as either a bullish reversal or the beginning of an uptrend after a period of sideways price movement. The first session is black and the second is white. This creates a hidden gap from the bottom of the first session to the bottom of the second. The real body of the second session should open at or above the middle of session one.

The chart of International Business Machines (IBM) included two stomach patterns, but each had very

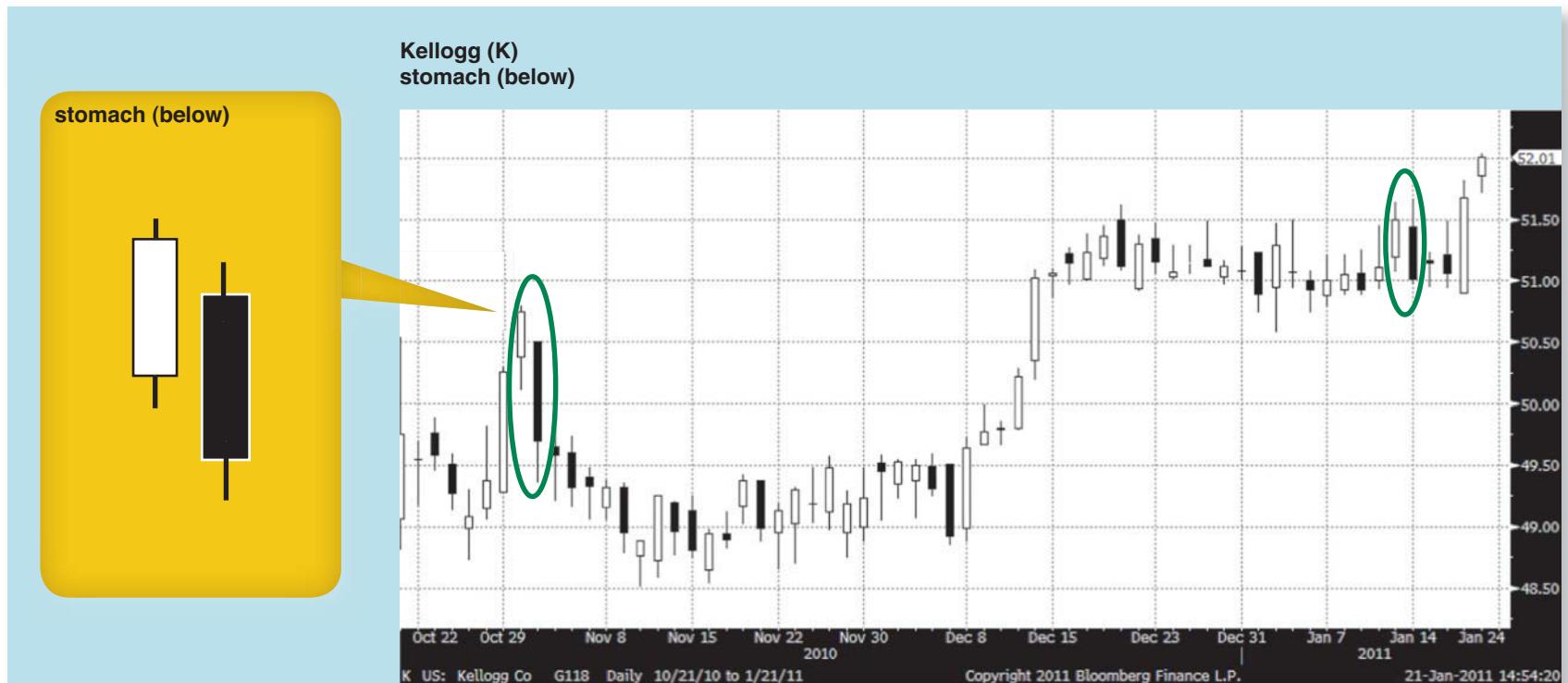
different interpretations. The first appeared after a five-week sideways trend, and it signaled the beginning of a slow but steady uptrend. The second signaled a far stronger change, the breakout above resistance and the beginning of a new and strong upward trend. The second white session was the breakthrough day, and this was confirmed three sessions later with a strong upside gap and then a long white candlestick. This was a significant breakout, and it began an uptrend that lasted for several months.



**stomach (below)** a two-stick pattern that may signal bearish reversal or bullish continuation. It consists of a white session followed by a black session. The second session forms a downward hidden gap between the top of session one to the opening top of session two. The second session should open at or below the midpoint of session one's real body.

Kellogg (K) concluded a strong four-session uptrend with a stomach. The long black candle in the second session was a very strong reversal sign. Price retreated

back to the support level and remained there for a full month before a later uptrend began. The stomach was confirmed by the three black sessions that followed. The stomach also tested resistance set in the period prior to that shown, but failed, leading to the brief downtrend. Although not shown on this chart, the downtrend was further confirmed by the crossover from positive to negative in the MACD indicator; this occurred close to the beginning of the period shown.



**DEFINITION:**  
**takuri**

The word *takuri* in Japanese means "a measure of depth." It is appropriately named because the lower shadow line illustrates a failed attempt to move price lower; the longer the shadow, the stronger the reversal.

**takuri line**

a one-session, bullish reversal indicator. It looks much like the hammer; however, the lower shadow is much longer. The signal is a symptom of a failed attempt by sellers to move price lower. Ideally, the lower shadow should be at least three times longer than the size of the real body. The takuri line session will be found at the bottom of a downtrend, and signals reversal. The real body may consist of either color.

Coca-Cola (KO) began its charted period with a **takuri** line after a brief downtrend. This marked the beginning of a two-month uptrend. The lengthy lower shadow of this pattern is a symptom of failed momentum by sellers. The indicated reversal was quickly confirmed by an upward-gapping series that began two sessions after the takuri line.



**KEY POINT:**

The tasuki gap is a continuation indicator for the current trend. It is aptly named; *tasuki* is the Japanese word for the cord that holds the sleeves of a kimono in place.

**tasuki gap (downside)** a bearish continuation pattern of three sessions. A tasuki gap holds the current trend in place. It consists of a black session followed by a downside gap, another black session, and then a white session opening and closing higher than the one before.

Bristol-Myers Squibb (BMY) ended its charted period with a downside tasuki gap. Although the last two days

on the chart appear to be reversing to the upside, the downtrend did continue for the following two months. Confirmation of the tasuki gap was delayed for five sessions, when consecutive long black sessions (both marubozu days) marked the resumption of the down-trend.

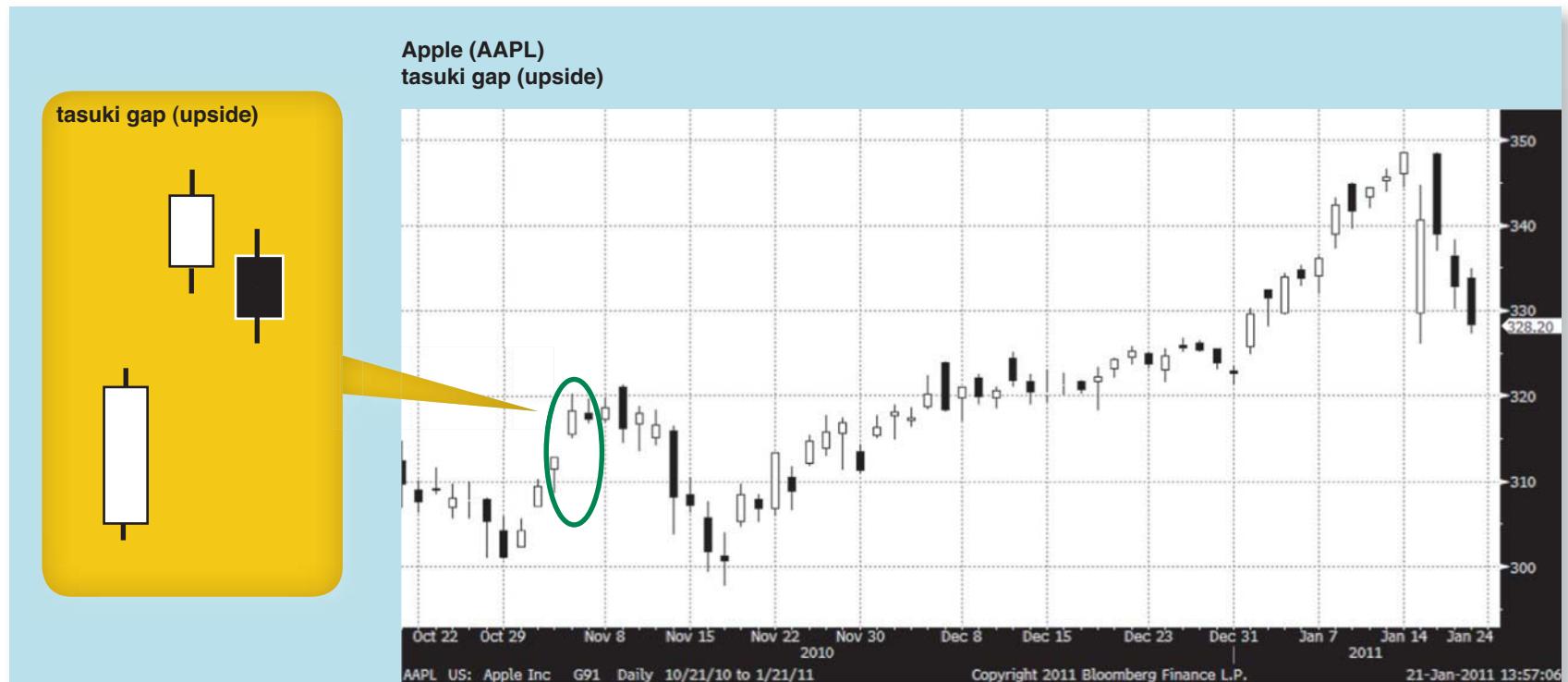


**tasuki gap (upside)** a three-session pattern indicating continuation of the current uptrend. However, continuation occurs only slightly more than half of the time it appears, meaning strong confirmation is essential before taking action on the tasuki gap.

The pattern consists of a white session and then an upside gap, a second white session, and a final black session opening lower than the close of the previous day and closing within the previous day's real body.

The chart of Apple (AAPL) developed an upside tasuki gap after a short uptrend. In fact, the uptrend

began from the point of established support. However, the continuation did not take place immediately. Price movement retreated all the way back to a rising level of support over the following three weeks before resuming the long-term uptrend. Because price retreated and took back all of the price movement of the uptrend, this example of the tasuki gap looked like a failed signal. However, the long-term trend was upward and when the full year is reviewed beginning the previous May, it is clear that this tasuki gap was a continuation pattern with a delayed reaction.



**KEY POINT:**

The three rivers is a convincing reversal signal, combining black-to-white switch as well as a downside gap before the white session appears.

**three rivers pattern**

a bullish reversal pattern of three sessions. The first is black and may also be a long black session. This is followed by another black session. Then a downward gap appears, followed by a white session marking the point of reversal.

Johnson & Johnson (JNJ) went through a volatile five-week period as part of a general downtrend. The three

rivers pattern appeared as part of a test of the support level for the second time in two weeks. The indicated reversal was immediately confirmed by an upward price gap and then a long white session. However, the uptrend stalled for two more weeks before a strong gap appeared and the uptrend began.



**KEY POINT:**

The three stars in the south is very unusual. Although it is a strong bullish reversal indicator, it consists of three black sessions.

**three stars in the south** a three-session bullish reversal, unusual in the sense that it consists of three black candlesticks. Normally, a bullish indicator would be more likely to consist of one or more white candlesticks.

This appears after an extended downtrend has been underway. Each of the three sessions closes lower than the one before; however, the relative narrowing of sessions is a signal of weakened momentum among sellers. The pattern is not an especially strong reversal sign, so independent confirmation should be

found before acting on the three stars in the south indicator.

The chart of Visa (V) contains a very interesting example of this pattern. About one week prior, a single-session 12-point drop occurred as part of a very strong and continuing downtrend. As prices began recovering after this sell-off, the three stars in the south was a convincing sign. Although the turnaround was not immediate, prices did continue their upward move after the pattern appeared and continued to rise for two months beyond the period shown.



**KEY POINT:**

Thrusting lines is a two-session continuation signal, but caution is required: It is not a particularly strong signal in either its bearish or its bullish configuration. Seek confirmation before acting on what thrusting lines predicts.

**thrusting lines (bear)** a two-session continuation pattern that will follow through some of the time. However, it is close to random in its success, and it may end up as part of a bullish reversal instead of a continuation. When a downtrend has not been of long duration or very strong, the bearish reversal should be acted on only if and when confirmation is found. The first session is black and the second white with a downside gap and lower open, and a close within the range of the real body of the first session.

An example of how difficult this is to interpret was found in the chart of Walt Disney (DIS). There was not

a long-term downtrend; in fact, prices had been rising and had fallen for only two sessions prior to the thrusting lines. This fact made the likelihood of continuation doubtful. After two additional black sessions, a string of white sessions created even more doubt. In fact, after the period shown, the price trend gapped higher and established a new support level at \$41 and resistance at \$44. This was an example of the bearish thrusting lines evolving into part of a bullish trend rather than a bearish continuation.



**thrusting lines (bull)** a bullish continuation indicator consisting of two sessions, the first one white and the second black with an upside gap opening and a close within the body of the first. This is not a strongly reliable continuation pattern, and it requires independent confirmation before acting on it.

American Express (AXP) revealed a bullish thrusting lines formation following sessions with strong upside gaps. Prices that followed did continue upward and extended for a full month to the upside, beyond the period shown on the chart.



**KEY POINT:**

The tri-star is very rare, especially if it consists of all doji sessions rather than a combination of doji and near-doji. It is not an especially strong signal of reversal, however, because it reveals indecision among both buyers and sellers. The signal has to be analyzed based on where it appears within a current trend.

**tri-star (bear)**

a rate indicator of three sessions, all doji or near-doji. This is found after an uptrend and signals the end and likely reversal. It may also lead to a sideways-trending market, as the narrow sessions are symptoms of indecision between buyers and sellers. The formation shows, more than anything else, that the current market is completely lacking in momentum on both sides.

Sherwin-Williams (SHW) displayed the indecision and lack of momentum typical of this formation. A long uptrend leveled out and the bearish tri-star concluded any bullish momentum in the price. However, the uncertainty led to a sideways movement rather than any turnaround. In fact, this indecision lasted a full month before a small downtrend followed (after the period shown).

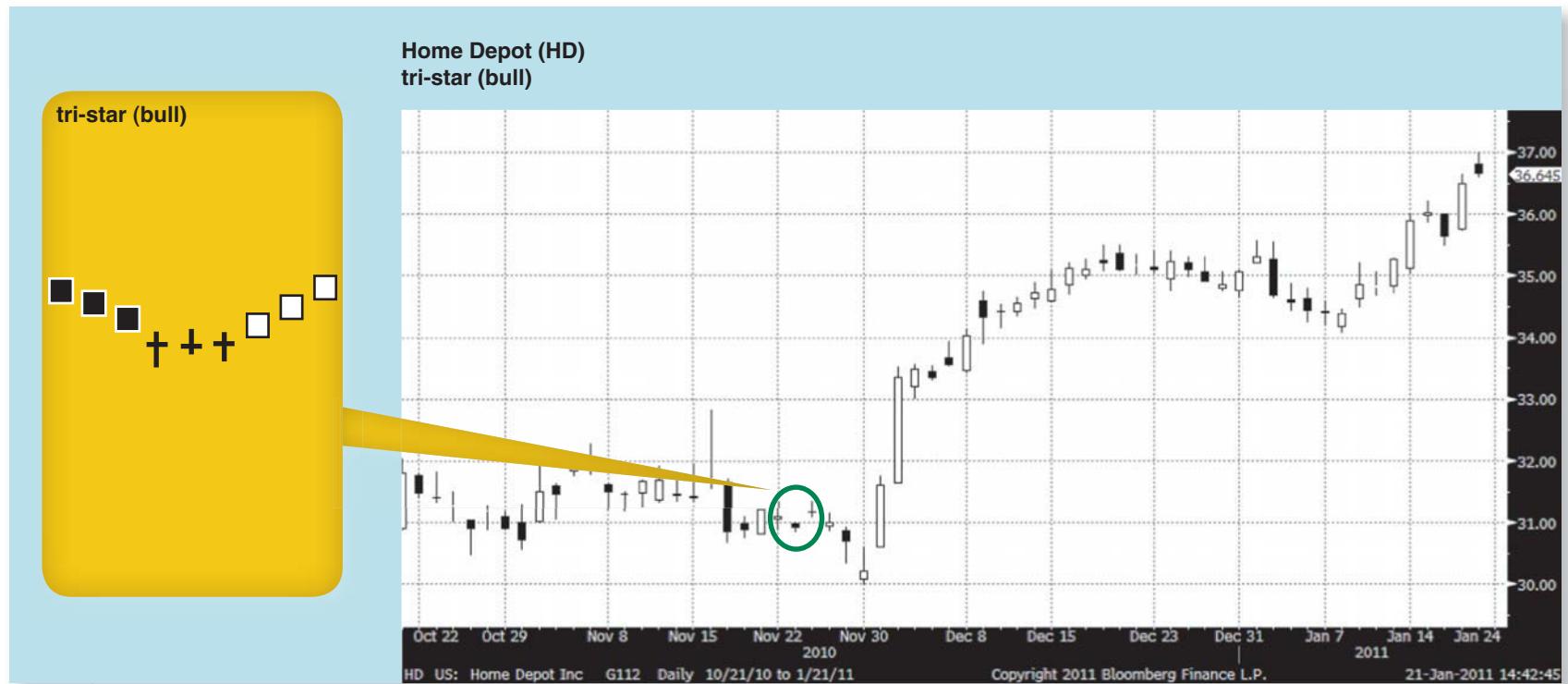


**tri-star (bull)**

a rare bullish signal made up of three doji or near-doji sessions. It reveals a lack of momentum on both sides. Because this is most likely seen after a downtrend, a reversal is expected once the indecision is resolved.

The chart for Home Depot (HD) did lead to a strong uptrend. However, at the time this was difficult to read as no clear downtrend preceded it. In fact, the sideways movement in price preceding the tri-star provided no

indication about which way the stock would eventually move. The formation is classified as a bull tri-star only because the price did move upward starting a few sessions later. However, at the time no clear confirmation was found, either in the price or in popular technical indicators like RSI or MACD. While long-term price did trend upward both before and after this period, none of the popular signals was helpful in determining where the trend would head next.



**KEY POINT:**

The tweezer involves two sessions moving in opposite directions; the second opens at the same price as the closing price of the first. It does not appear as very dramatic, but it is an exceptionally strong reversal signal.

**tweezer (bear)**

also called tweezer top, a two-session indicator found at the top of an uptrend and signaling reversal. It consists of a white session followed by a black session that opens at the same price as the previous close, but then moves lower. Because it is a dramatic reversal, it has a strong likelihood of accurately predicting a downward market. The first session moved up and the second session opened at the same price but moved down. This is an instant flip in momentum.

The chart of Pfizer (PFE) starts with the top of an uptrend that had been in effect for the previous three months. The bearish tweezer marked the change in

momentum that led to a one-month downtrend. The session following the tweezer formation is a key confirmation. It forms as a long-legged doji (which, due to the proximity of the horizontal line near the halfway point, can also be called a rickshaw man). The long shadows on both sides imply indecision but, coming after the bearish tweezer, the long upper shadow is more significant. It shows that buyers tried to move price higher to continue the uptrend, but failed. The struggle between buyers and sellers created the doji session, but as the next few days revealed, the sellers won and the downturn took effect.



**tweezer (bull)** also called tweezer bottom, a bullish reversal showing up after a downtrend. The first session is black and the second opens at the same price as the close of the first, but then moves up. The complete switch is sudden and demonstrates a complete change in momentum.

The chart of Alcoa (AA) shows an example of the bullish tweezer after a very short-term downtrend. This would make it a weak signal, if not for the long white

session in the second position. Over the following six sessions, the price moved up to the established resistance of \$14 before retreating. It took another full month before the price broke through resistance successfully. However, the tweezer confirmed the uptrend that began in late August and then paused in mid-October before resuming. Because of this, the Alcoa example worked as a bullish reversal in the short-term, but over a broader trend it was part of a continuation pattern.



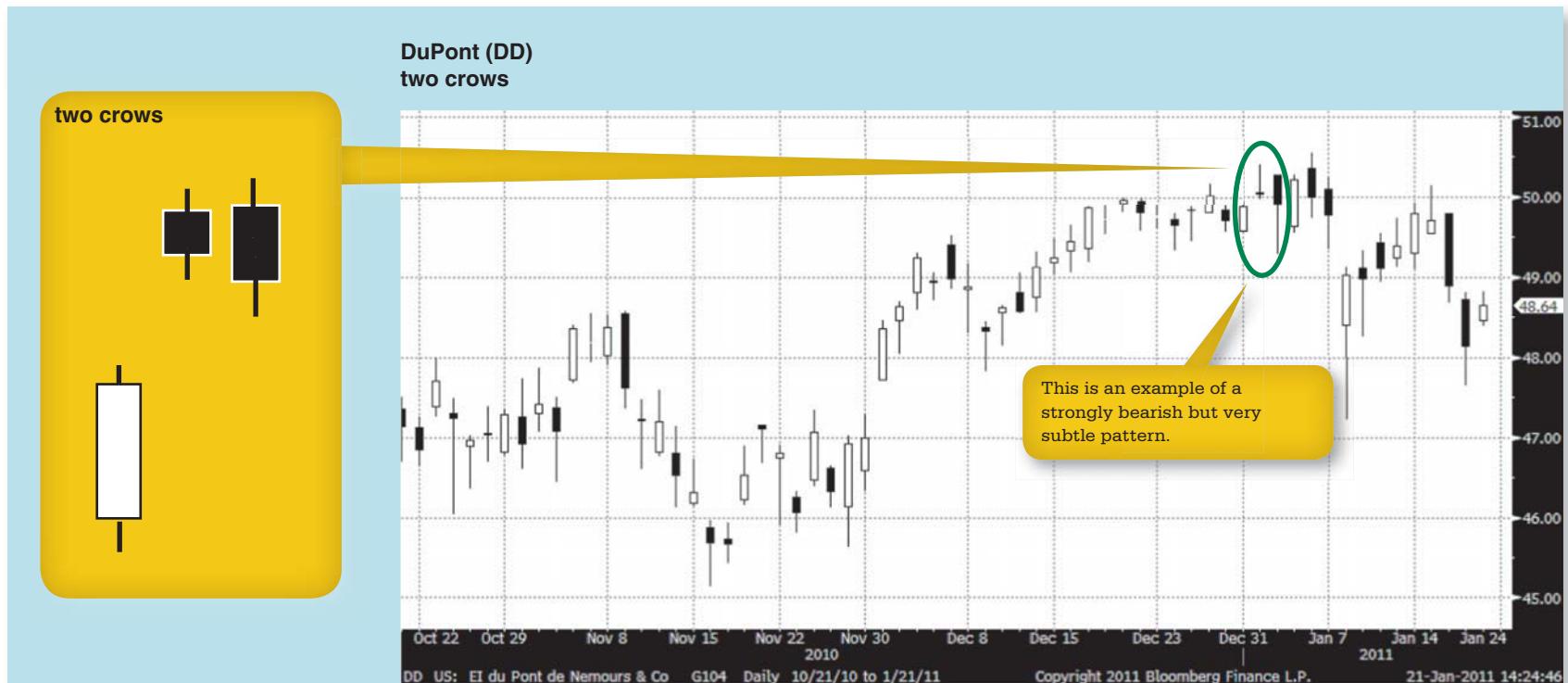
**KEY POINT:**

Although named two crows, this pattern has three sessions, the first white (then an upside gap) and sessions two and three both black. The third engulfs the second, and this precedes the strong bearish reversal.

**two crows**

a bearish reversal indicator involving three consecutive sessions. The first session is white and appears as a continuation of the established uptrend. It is followed with an upside gap. However, session two is black and session three, also black, engulfs session two. The third session's close should be higher than the range of the first session, so that the gap between sessions one and two is not filled until after the pattern has been completed. Confirmation of the reversal is especially strong if price gaps downward in the sessions that follow.

DuPont (DD) had a six-week uptrend ending on December 31. The two crows appeared at the top of the uptrend and, in fact, the second day gapped higher and formed as a doji, making the third engulfing day even stronger than it would be with a greater price range in session two. The large upper shadow further augmented the strength of the reversal. It was a sign of a failed attempt by buyers to continue the upward price movement. Three sessions later, a wide downside gap conclusively shows that the uptrend has ended.



**KEY POINT:**

Umbrella is a confusing signal. It may be of either color and could signal either bullish or bearish reversal, depending on where it appears within the current trend. It is very similar to the hammer and hanging man.

**umbrella**

also called a paper umbrella, a single session with a very small real body (near-doji) or an actual doji. The real body may be of either color. When this appears at the bottom of a downtrend, it is similar to a hammer; when it appears at the top of the uptrend, it is similar to a hanging man. However, in either the hammer or hanging man, the length of the lower shadow is not critical. The distinction for an umbrella is that the lower shadow must be longer than the real body.

This is one of the few indicators that serves either as a bullish or bearish reversal signal, depending on whether it marks the end of an uptrend or a downtrend. However, when it is found at the bottom of a downtrend, the long lower shadow supports the argument for lost seller

momentum. The shadow demonstrates that sellers were not able to force prices lower. When the umbrella is found at the top of an uptrend, the argument is more difficult to make even though the session looks identical. In both cases, confirmation is key.

The chart for General Mills (GIS) includes a very clear reversal of a downtrend and lead-in to an uptrend. The umbrella's lower shadow is more than three times longer than the real body. It was located after eight sideways sessions that marked the end of the previous downtrend. The reversal was confirmed by two very strong uptrend signals: the upward gap that followed immediately after the umbrella, and then the opening white marubozu.



**KEY POINT:**

Like the umbrella, the inverted variety is confusing because it may be either a bullish or a bearish signal. It is similar to the inverted hammer and shooting star indicators.

**umbrella, inverted** also called an inverted paper umbrella, a single-session reversal signal with a small real body (near-doji) of either color. The session has a long upper shadow and no lower shadow. This is similar to the inverted hammer (a bull reversal at the bottom of a downtrend) or the shooting star (a bear reversal found at the top of an uptrend). However, in those indicators, the length of the upper shadow is not as critical as it is in the umbrella, which should be much longer than the real body.

While the inverted variety of umbrella can provide either bullish or bearish reversal, it is stronger in the bear-

ish mode after an uptrend. This is due to the long upper shadow, most often a sign of failed momentum on the side of buyers. The shadow demonstrates that buyers did not have enough strength to push the price higher. The extension retreated to close lower.

In the case of Sears Holdings (SHLD), a short but fast uptrend ended a period of sideways movement but culminated in a bearish reversal in the form of an inverted umbrella. Note the upper shadow, which was about eight times longer than the real body. This is an exceptionally strong rebuttal to buyers in the attempt to drive the price higher.



**KEY POINT:**

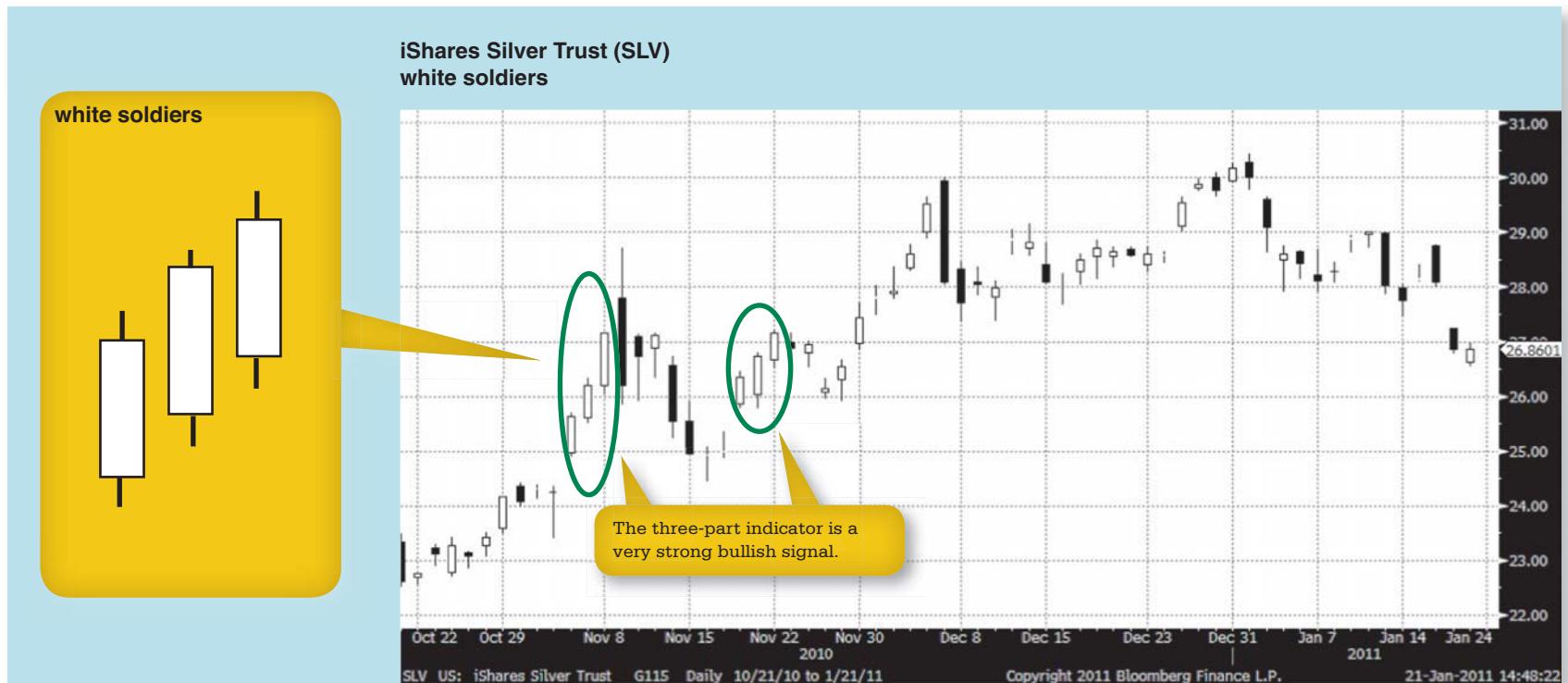
White soldiers is among the strongest bullish reversal indicators. Its opposite, black crows, is equally strong as a bearish reversal.

**white soldiers**

also popularly known as three white soldiers (but not limited to only three consecutive sessions), one of the strongest bullish reversal signals, consisting of three or more white sessions. Each opens and closes higher than the one before. Swing traders and day traders consider this the exact definition of a short-term uptrend, three or more sessions consisting of openings at higher lows and closings at higher highs.

The appearance of three consecutive white sessions moving upward is not unusual; but the criteria of higher

lows and higher highs without significant price gaps in between is distinctive. The chart of iShares Silver Trust (SLV) provided two examples of white soldiers in close proximity. The first was a strong completion of an up-trend, but it led to a contradictory long black session with long upper and lower shadows. The price then re-treated before the second white soldiers formation appeared. After this a gradual uptrend held for the next several weeks.



**KEY POINT:**

The window is simply a price gap. The distinction is that although a gap is common in trends, a true window is more, acting as a continuation indicator in two-thirds of occurrences.

**window (falling)**

the candlestick term for a downward gap. The formation is recognized as a two-candlestick indicator. Both sessions may be of either color and the general expectation is that prices will continue to move downward. The falling window is most often observed as part of a bearish continuation trend.

A typical falling window occurred twice during a downtrend for AT&T (T). The nearly consecutive nature of this downside gap makes the indication quite strong. Note that a window also occurred previously at the very top of the uptrend and then the price direction reversed. Under the more common definition of a continuation indicator, this earlier window was not the same as the

two that are highlighted. However, a reversal will occur after a window about one-third of the time.

Gaps are common occurrences, so confirmation is required before relying on the falling window. For example, later on the same chart, a consecutive falling window consumes four sessions, each one gapping downward. While this may be viewed as an exceptionally strong bearish indicator, prices turned upward and continued for three weeks in a new uptrend extending to the end of the charted period. Other than the very rapid gapping decline in price as one possible warning sign, no obvious reversal confirmation signals were found within the price patterns.



**window (rising)**

a two-session bullish continuation pattern in most cases or, about one-third of the time, a bearish reversal. Either session may consist of white or black candlesticks. The window is simply a visible price gap acknowledged as a visible upward-moving gap. Hidden gaps between sessions are not treated as rising window signals.

Verizon (VZ) had a five-week uptrend including two strong rising window signals. As was the case with fall-

ing windows, confirmation is required before acting on the appearance of gaps by themselves. For example, as the uptrend was coming to an end, a very strong rising windows signal occurred one day before the peak. In this instance, the window turned out to be a reversal that led to a reversal and then a downtrend.



**DEFINITION:****momentum oscillator**

A momentum oscillator is a type of price-based indicator. Momentum measures the rate of change in price; an oscillator shows how value changes in relation to a set value or values over time.

**DEFINITION:****The A/D indicator**

The A/D indicator is a momentum oscillator. Its value goes beyond the initial calculation, however. The moving average of A/D serves as the basis for the more revealing signal, the Chaikin Money Flow (CMF).

# Noncandlestick Confirmation Indicators and Terms

**accumulation/distribution** (AD) a **momentum oscillator** based on price trends, developed by Marc Chaikin, a trader who recognized the importance of whether current price movement of a stock is controlled by buyers (accumulation phase) or by sellers (distribution phase).

**The A/D indicator** is based on a single day's prices and it identifies whether buyers or sellers determined

the price levels and movements. A series of A/D days expressed in a moving average and divided by volume for the averaged period (usually 21 days) is called the Chaikin Money Flow (CMF), a strong technical sign that often provides reversal signals in advance of the turnaround and that may be confirmed by candlestick signals.



### DO IT YOURSELF

A/D is calculated by finding the sum of differences between the close/low and the close/high of a session:

$$([( \text{close} - \text{low} ) - (\text{high} - \text{close})] / (\text{high} - \text{low})) = \text{A/D}$$

The formula produces a numerical value between +1 (maximum accumulation) and -1 (maximum distribution).

### STEP-BY-STEP

Follow these steps to calculate A/D:

1. Subtract the session's low from the close.
2. Subtract the session's close from the high.
3. Find the net difference between the results of steps 1 and 2.
4. Subtract the session's low from the session's high.
5. Divide the result of step 3 by the result of step 4.
6. The answer is the A/D. If step 1 produced a negative result, A/D will also be negative.

## DEFINITION: **breadth indicators**

A breadth indicator measures advances and declines in price to identify participation among traders in a specific issue or in the market in general.

### DO IT YOURSELF

An example of A/D calculation: One session's high was \$38, its low was \$31, and its close was \$37. A/D was:

$$((37 - 31) - (38 - 37)) \div (38 - 31) = +0.71$$

### DO IT YOURSELF

When the net difference in the first side of the A/D formula is negative, A/D is also negative. One session's outcome was \$55 high, \$46 low, and \$48 close. A/D was:

$$((48 - 46) - (55 - 48)) \div (55 - 46) = -0.56$$

The A/D trend is important because it reveals what may be an otherwise invisible or subtle change in momentum. A focus on the **breadth indicators** may assume that as long as prices remain within the established trading range, no change is on the horizon. A/D may demonstrate that even when prices remain below resistance and above support, a developing shift in control precedes a turnaround in the trend and, often, a breakout from the established trading range. When the basic A/D formula is expanded into CMF and included on a candlestick chart, it provides a meaningful additional form of technical information and trend development.

The chart for American Express (AXP) shows both price movement and A/D. Note how A/D often precedes changes in price. For example, at the end of the first week in December, the price appears to be continuing upward, but the A/D line begins falling, anticipating the price decline that does not follow until one week later. This indicates that the uptrend was ending. A few days later, price reached the bottom of its down-trend when A/D fell below the zero line. However, A/D began moving upward a session before price followed. Once more, the reversal in A/D preceded the reversal in price.

**average true range (ATR)** at times confused with the simpler true range, which is a form of blending between two consecutive sessions, ATR is the averaging of 14 periods intended to smooth out short-term volatility. Originally developed by J. Welles Wilder and featured in his 1978 book, *New Concepts in Technical Trading Systems* (Trend Research), the indicator recognizes that volatility may prevent traders from recognizing the real trend underway and becoming too focused on the short-term price volatility instead.

The outcome of ATR relies on the starting point. Because the calculation of current and all future ATR levels is going to be affected by the level of volatility in the initial 14 periods, the outcome is also going to be affected by whether those periods are quite volatile, or very smooth. With this in mind, accuracy may be improved by calculating ATR based on an initial longer period,

perhaps even a 52-week range instead of only 14 days. Even with the longer period, the volatility during that period compared to more recent levels of volatility may also distort ATR.

A second problem grows from the fact that lower-priced securities tend to move in a narrower range than higher-priced securities. As a result, lower-priced securities tend to have lower ATR and higher-priced securities tend to have higher ATR, because the calculation is based on the point range. An alternative may be to use percentage changes over the period being averaged. However, the combination of trading price levels of different securities, with the issue of the starting point for the calculation, make ATR a difficult indicator to rely upon for timing of decisions. The study of candlestick patterns to confirm price patterns and volume is a more accurate method for measuring price volatility.

## DO IT YOURSELF

To calculate ATR, the prior ATR is multiplied by 13 and added to the current trading range; the sum is then divided by 14.

$$[(\text{ATR}_p \times 13) + \text{TR}] \div 14 = \text{ATR}_n$$

where:  $\text{ATR}_p$  = Prior ATR

$\text{TR}$  = current period's trading range

$\text{ATR}_n$  = new ATR

## KEY POINT:

There are two problems with ATR. First, the outcome varies depending on the volatility of the starting point. Second, calculation is based on point range, so lower-priced securities tend to have lower ATR than higher-priced ones with larger point spreads in their range.

**KEY POINT**

Blending combines a consecutive set of sessions into a single candlestick. This can clarify the picture, or it can obscure it.

**blending candles (bear)** candlestick indicators created by combining several sessions into a single indicator pointing to the downside. Blending may lead to trouble if not used sparingly; any series of candlesticks may be blended to create an effect. Blending is best used when a reversal trend is uncertain and blending can clarify the picture. It may apply in blending several days into a single indicator; it may also be used to summarize shorter trade intervals during one session into a blended version of the trend. The illustration of a bearish blending demonstrates how black crows can be restated to a blended long black candle.

A true blend extends from the open to the close of all of the candlesticks within the blended range, from the open of the first session to the close of the last, and should also reflect the high and low shadows of the entire range.

Blending may become quite complex and involve a number of sessions. The chart for Wal-Mart (WMT) provides an example of this blending process. The long black blend is a summary of 10 sessions. The blend clearly reflects the bearish reversal. However, the 10 sessions collectively are less clear in their significance. As long as the blending clarifies or simplifies the trend, it is a useful tool.

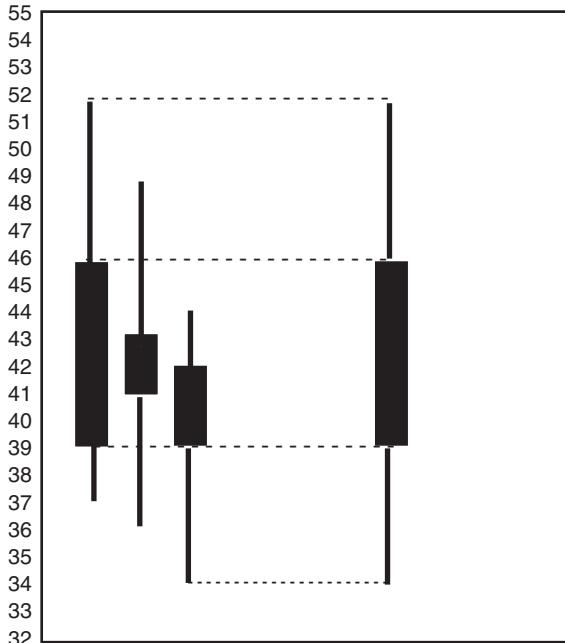
To create a blended chart, combine several consecutive sessions. The following three sessions were found on the accompanying chart:

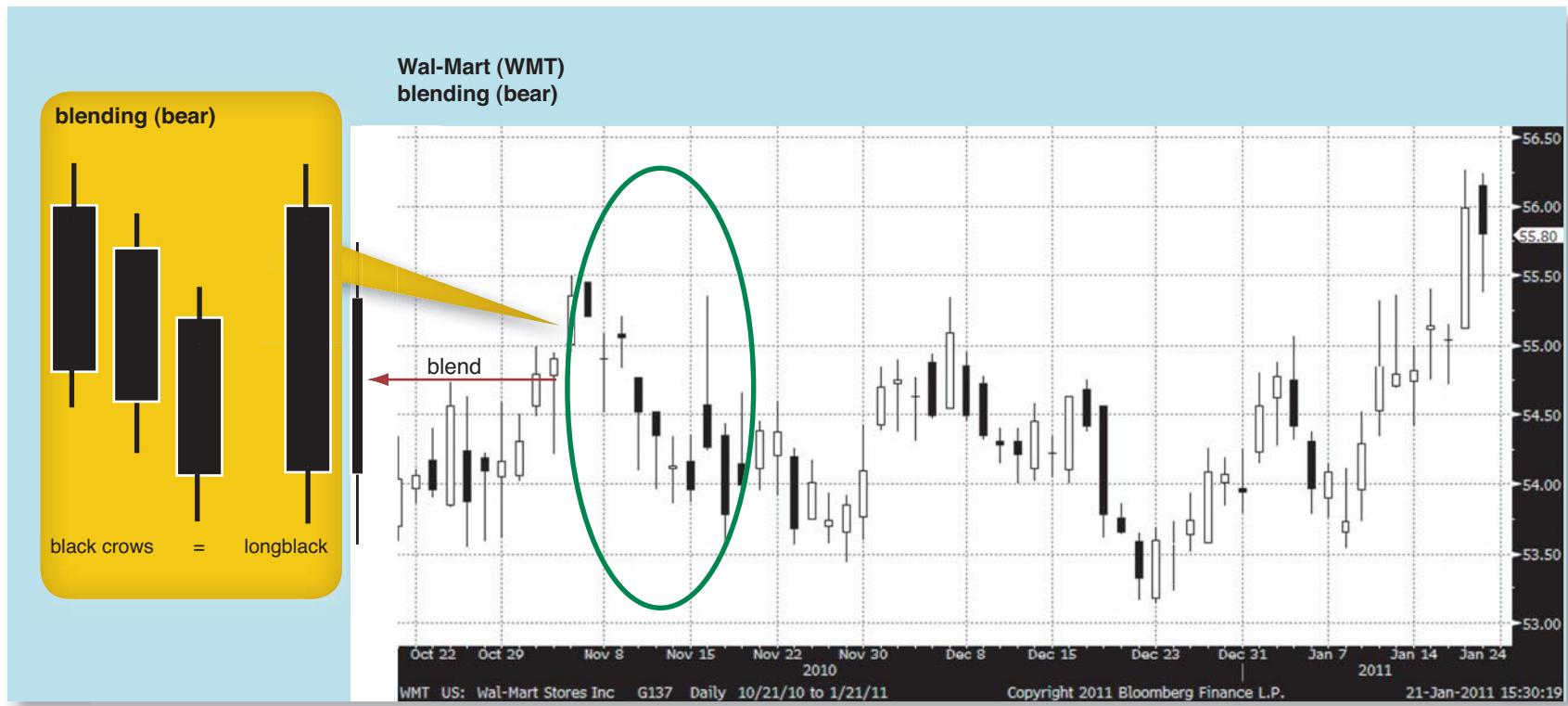
	open	close	high	low
Day 1	46	39	52	37
Day 2	43	41	49	36
Day 3	42	39	44	34

Calculate the following:

- a. The three days' candlesticks, showing the direction, high, low, open, and close of each.
- b. A blending candlestick combining all of the price features into a single session.

The answers are shown as:

**blending (bear)**



**KEY POINT:**

At first glance, the belt hold does not seem especially important. But the real key to understanding the belt hold is the invisible gap that forms between the two sessions. This gap, combined with the reversal in direction, makes the belt hold an important reversal signal.

**blending candles (bull)** blending can also be done on the bullish side. Any series of candlestick can be summarized in a blend to improve understanding of what a trend means. This is especially true when reversal seems to be underway, but chaotic price movement within the blended candlesticks obscures the signals. Blending is usually used to describe summaries of several days into a single candle; it can also be applied to shorter trade intervals during one session to create a blended version of the trend.

The next illustration shows how white soldiers can be blending into a single long white candlestick. In determining whether the blended version or individual candlesticks are most revealing, traders need to compare both. The white soldiers indicator is a strong bullish signal; so is a long white candlestick.

The chart for Exxon Mobil (XOM) shows how this comparison may be useful or confusing. The series of six white candlesticks provides a good bull trend indication; traders need to determine whether this is more or less useful than a blended long white session. The sideways movement that came next was followed by a resumption of the uptrend. With this in mind, the blended candlestick may have provided a stronger indication than the six individual sessions.

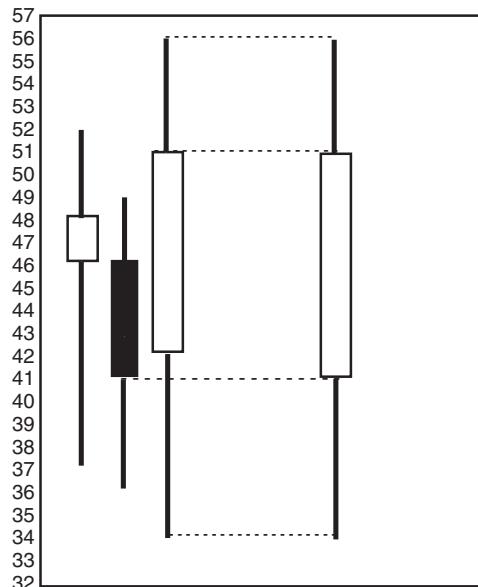
A blended candlestick combines consecutive sessions into a single one. For example, the following three sessions were found on the accompanying chart:

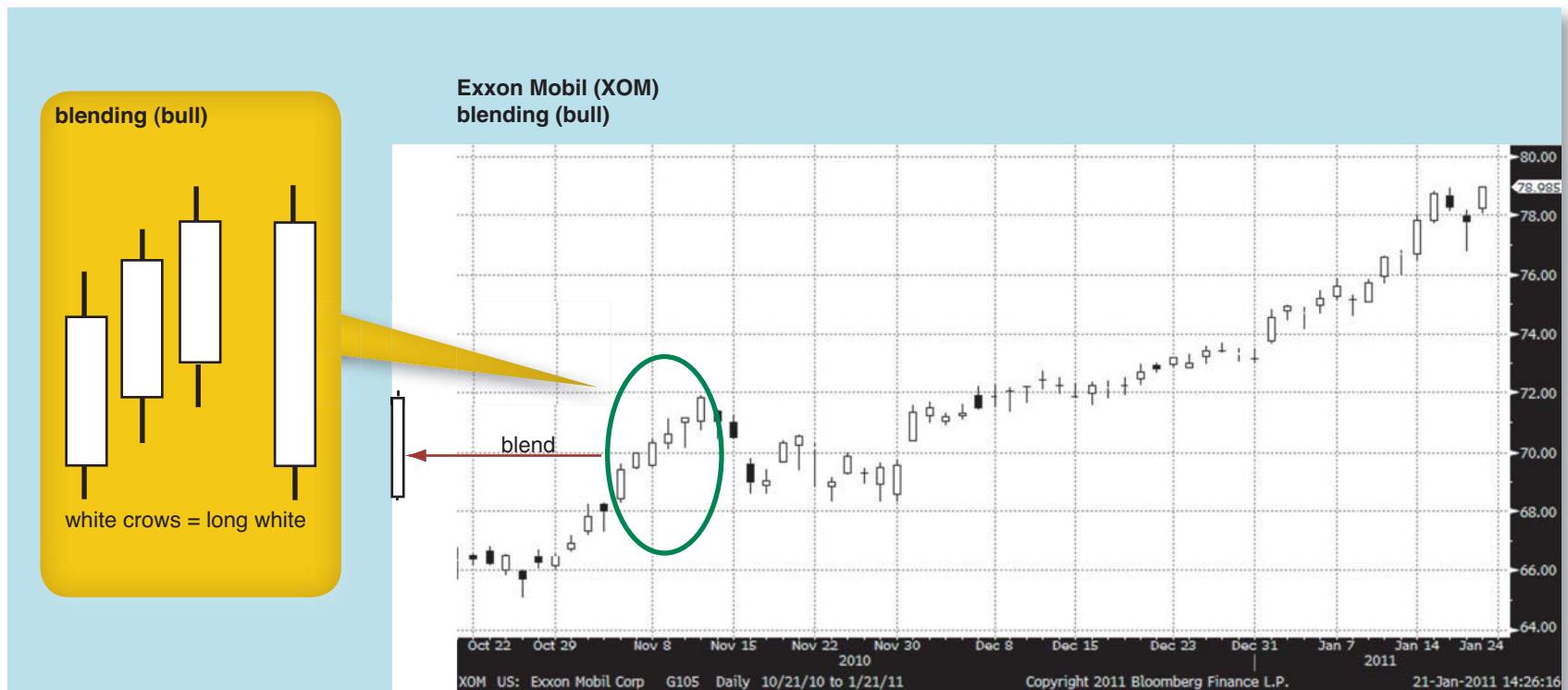
	open	close	high	low
Day 1	46	48	52	37
Day 2	46	41	49	36
Day 3	42	51	56	34

Calculate the following:

- a. The three days' candlesticks, showing the direction, high, low, open, and close of each.
- b. A blending candlestick combining all of the price features into a single session.

The answers are shown as:

**blending (bull)**



**KEY POINT:**

Bollinger bands show variations above and below a simple moving average. The indicator is valuable for anticipating reversals and works nicely with confirming candlesticks.

**Bollinger bands**

a useful technical indicator developed by John Bollinger in the early 1980s. Bollinger, a chartered financial analyst and chartered market technician, created the bands as a means for anticipating price trends in a systematic way before price reversals occur.

The indicator consists of three separate bands or curves. The middle, or intermediate band, represents a simple moving average of price. Bands two and three are found above and below and are calculated by price volatility (plotted as two standard deviations of 20 periods' moving average in default settings, which can be adjusted for more or fewer periods as desired).

Bollinger bands can be used in conjunction with candlestick indicators, either to confirm those indicators or as a lead indicator to be independently confirmed by subsequent candlestick patterns.

Bollinger devised this indicator in the belief that volatility levels are dynamic and rarely static for a particular security. Changes in volatility levels, whether attributed to a specific security or responsive to larger market causes, anticipates changes in price direction and momentum. This concept—that volatility acts in a dynamic manner—went against the popular technical thinking of the 1980s, when the bands were introduced.

The use of three bands is crucial because the span between top and bottom to the middle simple moving

average expands and contracts as volatility changes. The bands place relative values on high and low volatility and help traders recognize emerging price patterns, also improving the timing of entry and exit. When combined with candlestick patterns as confirming indicators, Bollinger bands add the element of changing volatility to the study of the price trend.

Bollinger bands display changes in momentum, volume, and trader sentiment that collectively strengthen the use of candlestick signals in spotting and timing reversals, or in noting continuation indicators. Because the bands test both momentum and direction, they are valuable tools for testing overall sentiment about the security. The indicator is valuable in confirming double tops or bottoms, head and shoulders, and other tests of trading range borders, especially when candlestick indicators reveal the same changes as the bands.

The chart for Coca-Cola (KO) tracks the three bands in the illustration. Note how the range between the bands begins to narrow during the second half of December. This signals the slowing down of momentum in the prevailing uptrend, even though this was not indicated in any immediate candlestick patterns. However, the combination of the narrowing Bollinger bands and the sideways price pattern foreshadowed the subsequent reversal and downtrend.



**KEY POINT:**

Breadth—a visual representation of volatility—is the measurement of market risk based on movement of price within the trading range.

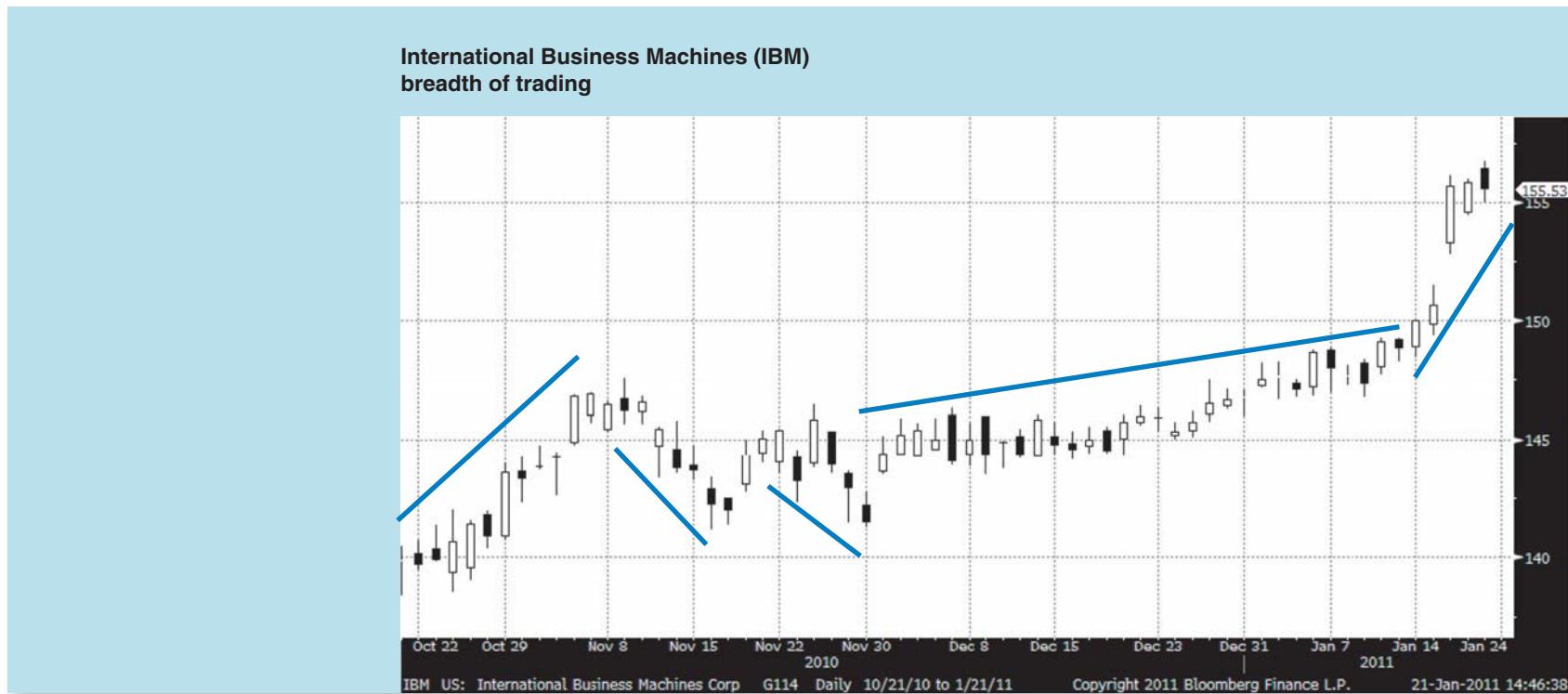
**breadth of trading** a class of technical indicators that measure price volatility over time. The indicators include the 52-week high/low, advance/decline index or line, absolute breadth index, and cumulative volume index, among others. The term also applies to the longer-term tendency within price volatility. As the trading range's breadth broadens, volatility grows; as it narrows, volatility declines. The trend toward increasing or decreasing volatility is one of many signals of changes in momentum.

Divergence among technical indicators lead to major indices moving contrary to what breadth indicators reveal. Popular indices such as the Dow Jones Industrial Average (DJIA) reflect current price trends as the average of only 16 issues, for example. So the trends are not only reflective of averages among bullish and bearish trends; these indices may also diverge from the broader market's trend and sentiment. This is why indicators focused on breadth of trading help clarify or contradict trends coming solely from weighted indices. Breadth of an overall market can be measured using several indicators. These include:

- **issues traded**, the number of stocks listed on an exchange during a single day. The greater the level of activity, the higher trading volume tends to be. A flaw in issues traded is that the number is usually going to closely approximate the number of total issues available for trading on each exchange.
- **large block trades**, a test of institutional trader participation. These are single trades of 10,000 shares or

more of a single issue. This is a test of market interest as well as a directional indicator within market breadth.

- **advancing, declining, and unchanged issues**, a test of breadth based on stocks rising or falling in a single day. On notably bullish days, advancing issues will outpace declining, and on bearish days, the opposite is expected. However, the relationships are not specific, so the advance/decline ratio may predict growing or shrinking trend momentum. When major indices, such as the DJIA, reflect advance/decline trends opposite the overall market, it is a sign of weak breadth.
- **advance/decline line**, a value derived by subtracting the number of declines from the number of advances. The result is then plotted over a number of sessions to spot the bullish (rising) or bearish (falling) trend represented by the net difference between the two. A noncumulative variation of the advance/decline line is the sum of the net difference between advancing and declining issues, divided by the number of issues traded on the session.
- **overbought/oversold index**, an indicator closely related to advancing and declining tests. In this index, the number of advancing stocks is divided by the number of declining stocks. A higher ratio reflects a bullish sentiment, and a lower ratio is bearish. This is a useful breadth test when tracked over time.
- **unchanged issues index**, calculated by dividing the number of unchanged stocks by the total issues traded. The resulting percentage reflects possible turning



points in the market breadth, pointing to potential reversals from the current trend. Unchanged issues is a low number when the market is trending strongly in either direction. As the market moves toward a period of consolidation (which often precedes a turn in the trend direction), unchanged issues are likely to increase.

■ **absolute breadth index**, a test of participation in the market without distinguishing between rising and falling prices. It is the sum of subtracting declines from advances and dividing the difference by the number of shares traded on the exchange. This percentage will be the opposite of the unchanged issues index. It is termed “absolute” because the

## DO IT YOURSELF

To calculate TRIN, divide the advance/decline ratio by the ratio for advancing volume to declining volume:

$$(A + D) \div (AV + DV) = \text{TRIN}$$

outcome is identical whether more issues advance or decline.

- **new high and new low prices**, the number of stocks attaining these levels based on the past 52 weeks. More new highs are expected to appear in bull markets, and more new lows during bear markets.
- **volume trends**, a summary of total shares traded during a session. When price movement is high, the direction is confirmed by correspondingly higher than average volume. This is a strong test of breadth due to the confirmation of moving trading ranges that accompany high volume in strongly dynamic markets.
- **advancing and declining volume**, a further distinction of market breadth and what it means. Many technical tests of daily volume controlled by either buyers or sellers provide valuable

confirmation of both candlestick-based and other technical signals.

- **traders index (TRIN)**, also called the ARMS Index, is computed by dividing the advance/decline ratio ( $A \div D$ ) by the ratio of advancing volume (AV) to declining volume (DV).

Candlesticks may confirm indicated changes in market breadth, just as breadth trends may confirm what candlestick indicators are showing. For example, IBM's range remained within a five-point spread throughout most of the period shown on its chart. However, the last leg demonstrated a significant jump in breadth, with price climbing 10 points in less than two weeks. The sudden rise in breadth and accompanying accelerated momentum was confirmed by consecutive upward-moving candlesticks and price gaps.

**breakaway gap** a price pattern starting with a gap that becomes the beginning of a new trend; the price gap may also be part of a pattern of gapping action with recurring gaps in an especially strong upward or downward trend.

The breakaway gap may confirm a candlestick indicator of reversal from a previous trend, or the candlestick indicator may confirm what the gap appears to indicate. Likely to be accompanied with a period of higher than usual volume, the breakaway gap is a signal of momentum. It breaks through resistance on the way up or through support on the way down.

The gap and direction are not enough to qualify a gap as a breakaway, however. It requires that the movement continues in the indicated direction and that price does not retreat to fill the gap and return to its previous trading range. The significance of the breakaway gap is that it moves into new trading range territory.

The volatility associated with breakaway gaps is a confirming signal that the breakaway is going to hold. When a breakaway pattern is not accompanied by volume spikes or repetitive gapping price patterns, it probably means the apparent breakaway will fail in the near future, and prices will retreat. The breakaway is just as likely to signal reversal as a decision point moving price above or below a trend of sideways movement. In that instance, the breakaway marks the end of the congestion price range and a firm decision granting control to either buyers or sellers. During congestion, temporary and often narrow resistance and support levels are established and then finally broken by the breakaway gap.

The dramatic increase in volume reflects two important changes after the sideways trend. First is the volume created by those controlling the direction of the breakaway. Second is volume generated by traders covering or closing positions entered when the expectation was for price to move in the opposite direction. Long traders sell when the breakaway moves downward, and short traders cover their short positions to curtail losses as price moves upward. Both of these actions create additional volume. In the case of traders exiting previous positions, the increased volume is most likely to occur after the breakaway gap. These traders are less likely to anticipate the gap and more likely to respond to it.

Confirmation is likely to be found in triangles or in previous resistance establishing new support in an uptrend, or previous support becoming new resistance in a downtrend. Candlestick formations indicating reversal and then followed by clear trending price patterns further confirm that a breakaway gap will not turn into a failed breakout.

For example, in the chart of Bristol-Myers Squibb (BMY), two breakaway gaps were found, each marking the beginning of a new trend. First was an upside gap on the first trading day of December. Second was a downside gap in the first week of January. Both of these were the starting points of a reversal and new trend.

The first, upward reversing breakaway gap confirmed a strong indicator in preceding days. First were consecutive doji sessions (narrow-range days), with the second showing an unusually long lower shadow. This indicated weakening of seller-side momentum. Then a white

### KEY POINT:

A breakaway gap presents a challenge in interpretation. It might be a signal of a new trend and higher or lower trading range. It might also end up failing when price reverses and fills.



### KEY POINT:

With price patterns like breakaway gaps, you have to rely on strong confirmation before deciding what is going on. This is where candlestick formations are valuable.

inverted hammer day clearly signaled that an uptrend was about to occur. The following session began with the breakaway gap to the upside.

The second, downward reversing breakaway gap was preceded by a three-stick evening star pattern. This is a rare but very strong signal; in this situation,

the candlestick pattern was followed by four uncertain sessions before the downward breakaway gap occurred.

These two breakaway gaps are good examples of a technical pattern and candlestick cross-confirmation of reversals.

**breakout** a significant technical price move, in which the price level trends above resistance or below support. Breakout may signal a new trend leading to the establishment of higher or lower trading range, or it may fail and prices retreat back to the previously established trading range.

A successful breakout may be foreshadowed by candlestick formations, in which case the breakout confirms what the candlestick indicator predicted. A breakout may also be confirmed or contradicted by subsequent candlestick indicators. For example, a breakout accompanied by long candlesticks (single stick), engulfing or harami patterns (double stick) or white soldiers, black crows or abandoned baby (three stick) provide exceptional confirmation of the direction established by the breakout. If the momentum weakens after the breakout, similar candlestick patterns in the opposite direction indicate failure of the breakout and likely retreat of prices back to the previously set trading range.

The chart for Caterpillar (CAT) provides an example of a bullish breakout. The previous resistance level is passed and a new trading range established. The legitimacy and permanence of the breakout is confirmed by a very strong bullish candlestick formation in the form of the white soldiers (three or more sessions with consecutively higher high prices and higher low prices).

A bearish breakout is shown in the chart of Best Buy (BBY). In this case, a very strong breakout through support was predicted by two factors. First was the strong

and consecutive downside gapping price action. Second was the black crows. This is an exceptionally strong indicator and the third leg of the pattern moved price beneath support—this was a slight downward move, but it proved to be significant.

For a final look at breakouts, look at the chart for AT&T (T). This chart contains three failed breakouts. The first downside attempt at breakout was not strong, and the patterns, even in the downward candle series, were erratic. The final entry in this reversal consisted of an upside gap and then a white candlestick, a signal that the breakout had failed.

The second, upside breakout consisted of rapid upward movement and three consecutive sessions with upside gapping action. Movement in one direction was strong and fast, but the last white candle also had long shadows on both sides, indicating a slowing of momentum. The subsequent downward trend, including four sessions with price gaps, was as troubling on the downside as the previous, similar pattern was on the upside. The final analysis shows, however, that the established trading range held even with the volatility both attempted breakouts revealed.

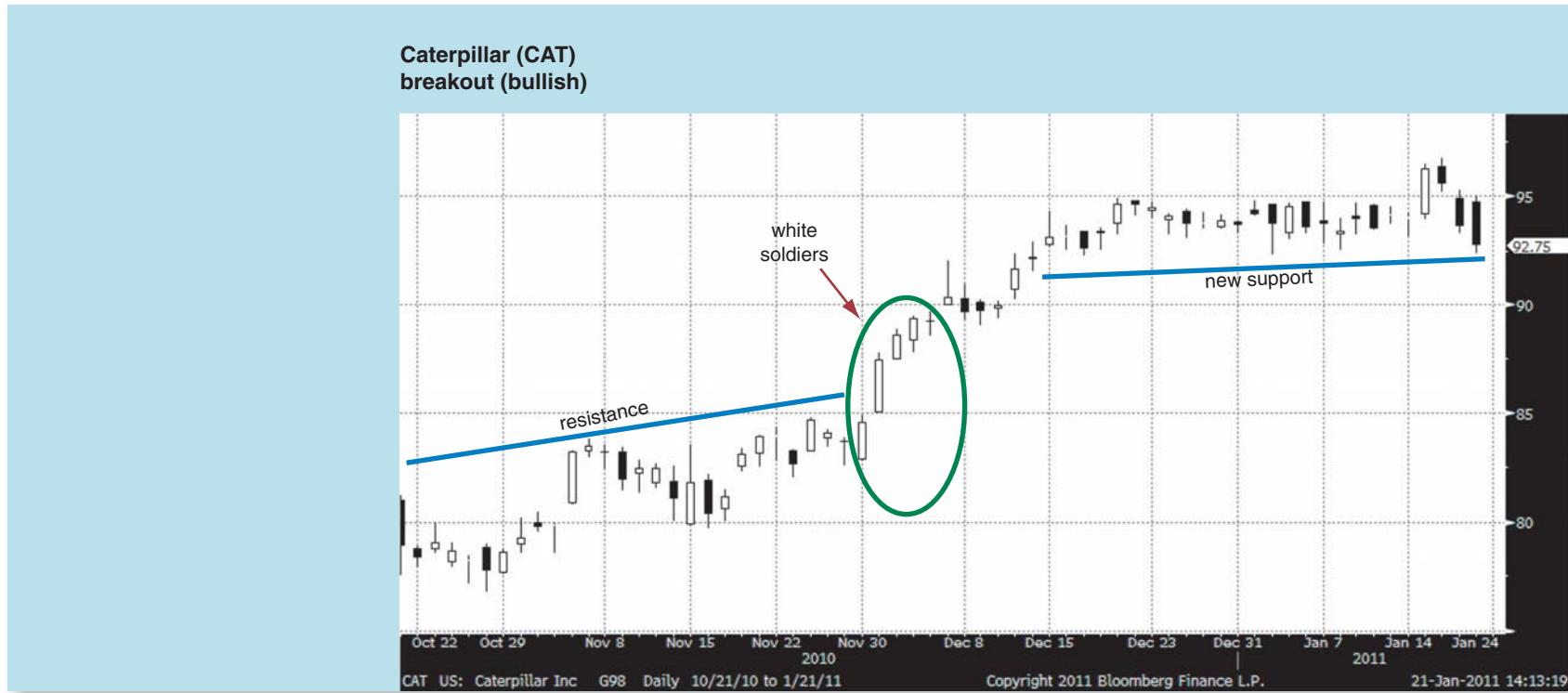
The third example, a failed breakout below support, dipped below that level on three consecutive sessions, with the third forming the first half of an exceptionally strong bullish engulfing pattern. The second session, a long white candlestick, demonstrated that the attempted breakout had failed.

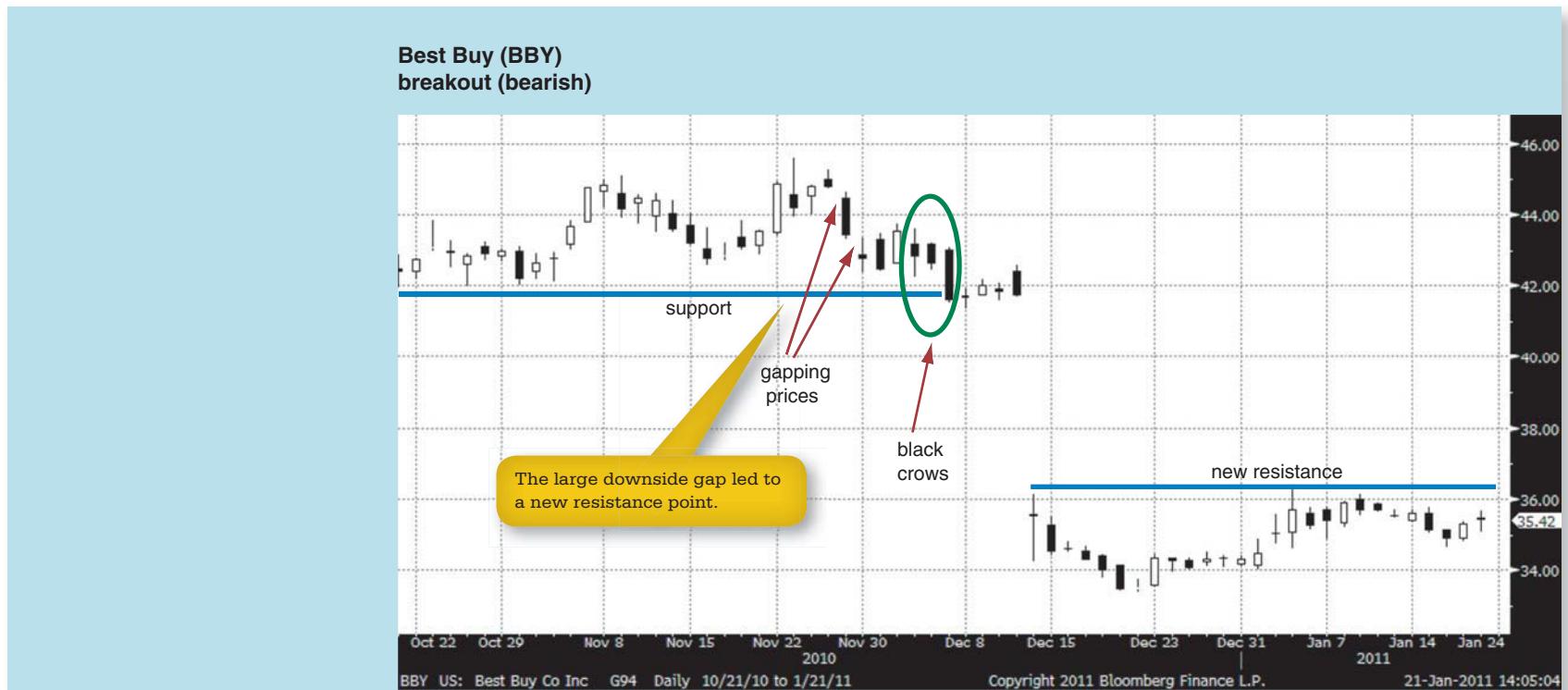
### KEY POINT:

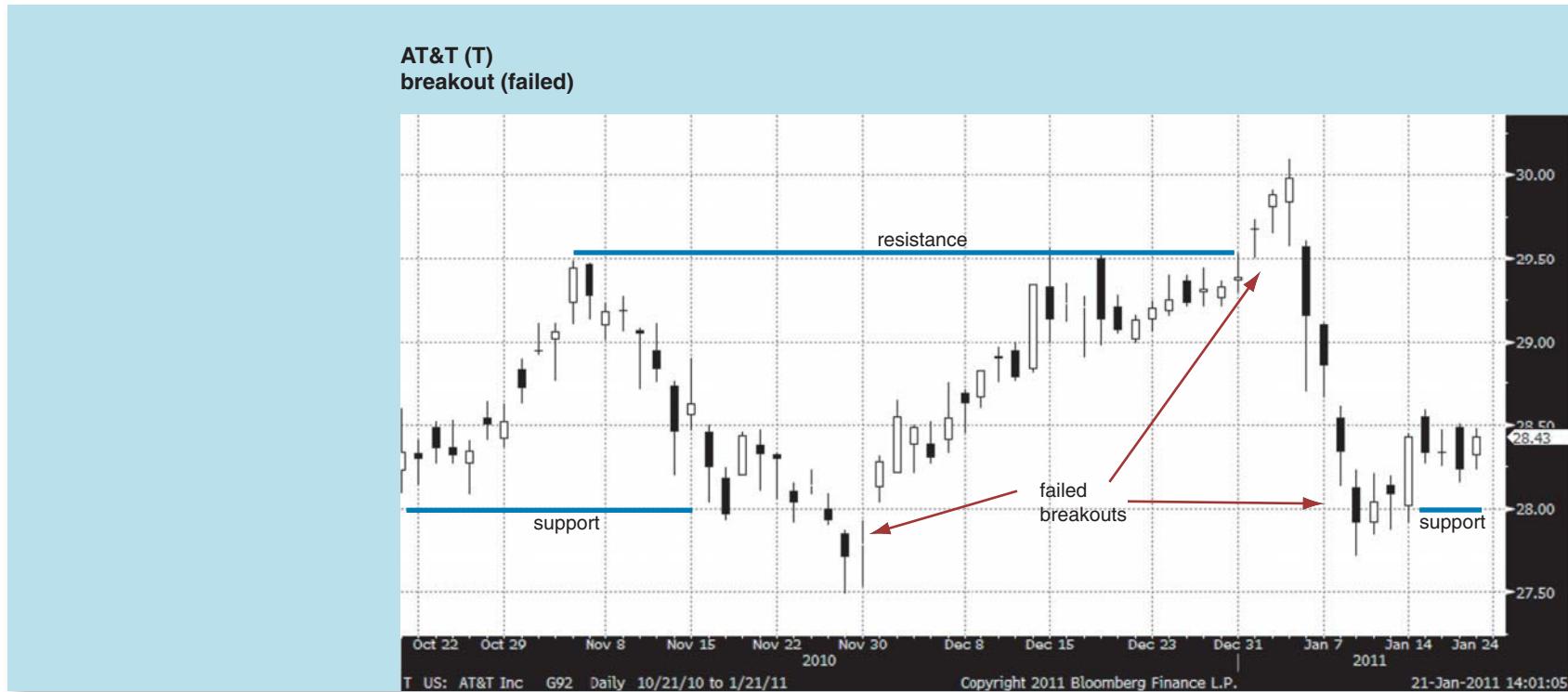
A breakout is the first step in establishing a new trend. But its success or failure can be predicted only when confirming signals reveal whether it is succeeding or failing.

### KEY POINT:

Repetitive failed breakout patterns reveal that the side trying to break out (sellers on the downside, buyers on the upside) lacks the requisite momentum to move price permanently out of the current trading range.







**Chaikin Money Flow (CMF)** a technical indicator based on volume and comparing buyer and seller activity. The CMF is the basis for calculation of accumulation/distribution (AD), a momentum oscillator. CMF, developed by Marc Chaikin, summarizes a cumulative total of volume for a period, usually 20 sessions. The indicator produced is calculated either above or below a zero point so that traders can judge the relative strength of volume and identify whether it is being influenced more by buyers or by sellers. The indicator changes any time it crosses the zero line, demonstrating that the pressure from buyers has switched to pressure by sellers, or vice versa.

The CMF result will be above zero if buyers had greater influence during the 20-day period, and below zero if sellers dominated. The maximum range of the indicator is between 1 and -1.

The calculation can be chosen as a technical selection in developing price charts, with CMF usually

shown below the price tables. The value to this indicator is that it often reflects changes in momentum before price moves, and confirms what candlestick formations show. For example, the chart of Johnson & Johnson (JNJ) showed CMF moving above and below zero several times during the three-month period. The short-term price swings often were predicted early by CMF. In the last week of November, for example, the price fell dramatically while CMF rose. The doji session at November 30 marked a turning point based on candlestick analysis, but CMF had been rising for a week by that point. During the first week of December, traders might have expected an uptrend, but CMF contradicted this as it fell below zero. The rest of December and all of January was a period of uncertainty. If traders relied only on candlestick analysis, failed indicators were possible. The combined analysis of candlestick indicators and CMF provided a more reliable set of timing signals.

## KEY POINT:

The appeal of CMF is its simplicity. It ranges from 1 to -1 with a zero line as the point defining which side is in control.

## DO IT YOURSELF

To calculate CMF, four steps are required:

1. Calculate the multiplier for each of the 20 sessions.

$$\frac{[(\text{close} - \text{low}) - (\text{high} - \text{close})]}{(\text{high} - \text{low})}$$

2. Multiply the result by the session's volume.

$$\text{Multiplier} \times \text{Volume for the session} = \text{Money flow volume}$$

3. Add the totals for all 20 periods.

$$\text{Money flow volume} \times 20 \text{ periods} - 20\text{-period volume}$$

4. Divide by 20 to find the average.

$$20\text{-period volume} \div 20 = \text{CMF}$$



**channel lines** a visual device used to identify trends in prices and also to provide confirmation or contradiction of candlestick reversal indicators. The lines are drawn above and below the trading range in parallels, marking resistance and support in all types of trend movements.

There are three possible trends: upward, downward, and sideways. Channel lines identify all three and also act as confirmation of candlestick indicators; this is especially important when momentum in an existing trend begins to weaken and traders attempt to identify the reversal point. This may be first seen in a price decline in the uptrend through the bottom of the rising channel lines, or in a price increase in the downtrend through the top of the falling channel lines.

The chart for Google (GOOG) showed both falling and rising channel lines. At the end of the falling channels, the long black candlestick is followed by an upward-moving gap and then three uptrend days.

Even though subsequent sessions were black, they continued moving upward in a gapping pattern. This also marked the beginning of the upward-moving channel lines.

The channel lines identify resistance and support, which may each remain at the same levels or change dynamically. In these examples, Google's price history was characterized by dynamic movement in both directions. The identification of the trading range, when this strong, may also serve as a visual representation of price volatility.

### KEY POINT:

Channel lines are expanded versions of trendlines. They border the current trend and identify likely reversal through the simplicity of two straight lines.



**common gap** a recurring and regular aspect of price movement, in which price in one session opens at a gap either above or below the close of the previous session. As long as the trading range remains intact, a common gap should not be considered as any type of signal of reversal or breakout. When viewed as part of a candlestick formation that indicates reversal, gaps are often exhibited.

If and when the common gap develops into a trend and a pattern of gaps, it is no longer a common occurrence. Recognition of the differences between the common gap and the gap taking place as part of reversal may be based on recognition of candlestick reversal patterns, momentum, and tests of resistance or support. Some

common gaps are also hidden gaps, meaning they are not immediately recognized because candlesticks between sessions overlap.

Common gaps are identified on the chart of Visa (V), and 10 instances are marked with arrows. Many additional gaps are observed as well; however, these may be part of developing trends or reversals and are not common. Two specific hidden gaps are also marked by the green arrows. In the first one, a white candle day is followed by a black candle day that opened higher than the close of the white day. In the second one, a black candle was followed by a white candle that opened higher than the previous close. Both of these examples are common gaps, but they are not visible immediately.

### KEY POINT:

The important fact to remember about common gaps is that they are common. They occur as part of normal price movement but by themselves are not significant.



**complex gap trends** types of gapping action seen as part of candlestick formations. In these indicators of three or more sessions, the gap plays an important role, not only in defining the importance of the price trend but also in identifying the strength or weakness of the momentum that is involved.

Examples of complex gap trends are the tasuki gap (both downside and upside) and the gap filled (downside and upside). These types all contain gaps. The tasuki is characterized by gaps not being filled, which distinguishes it from the gap filled.

**KEY POINT:**

Traders find consolidation frustrating; they want to see movement. However, periods of sideways movement are necessary in order for buyers and sellers to decide who will be in control in the next trend.

**consolidation**

a trading pattern in which the price movement is sideways rather than in either an uptrend or a downtrend. Also called congestion, this is interpreted as a time of indecision in which neither buyers nor sellers are able to move price out of the current narrow range.

Consolidation often follows a strong trend and represents a period of rest before the trend either resumes or is reversed. The time may be limited to part of a day or last for weeks or months. Volume during consolidation may be quite low, and the range from high to low may be low as well.

Once a breakout occurs from the consolidation range, a new trend begins. A study of the price pattern alone does not reveal the likely direction of the new trend. However, a combination of analysis including momentum indicators and candlesticks may foreshadow the actual move by a few sessions. The direction is quite uncertain and may go either way, so the use of any signal indicator is not wise. Confirmation of any indicator implying a coming breakout is essential before orders are placed.

**continuation** any indicator anticipating that the current trend will continue in the same direction. In comparison, a reversal is an indicator pointing to the current trend ending and then a new trend starting in the opposite direction.

Continuation patterns include the rising or falling three methods, tasuki gaps, side-by-side lines, neck lines,

and thrusting lines. The continuation may be bullish or bearish, depending on the direction of the current trend. In Western technical analysis, continuation is found in triangles and wedges.

**KEY POINT:**

As long as trades are opened and closed within a single trading day, no margin maintenance applies, since that is based on balances at the end of a session. This leverage opportunity can be abused, which is why active traders are likely to fall under the definition of a pattern day trader.

**REGULATORY AGENCIES CAN BE CONTACTED AT:**

Financial Industry Regulatory Authority (FINRA)—[www.finra.org](http://www.finra.org)

Securities and Exchange Commission (SEC)—[www.sec.gov](http://www.sec.gov)

**day trading**

the practice of moving in and out of positions very quickly, with the primary characteristic closing of all open positions by the end of the trading day.

This achieves two goals. First, it avoids the risk that securities may open significantly higher or lower than the previous day's closing price, in which case a trader is not able to control or time an exit strategy. Second, margin requirements are circumvented by closing leveraged positions, since margin requirements are computed based on open trades at the end of the trading day.

Frequent trading may lead to a trader being classified as a pattern day trader, a status defined by the Financial

Industry Regulatory Authority (FINRA) and the Securities and Exchange Commission (SEC). A pattern day trader is any trader who buys and sells a specific security or position four or more times in any five consecutive market sessions. An individual fitting this criterion is required to maintain an equity balance of no less than \$25,000 in a margin account.

The key to day trading is timing of both entry and exit. For this reason, many day traders rely on candlestick chart analysis in conjunction with confirming momentum indicators and other technical price and volume patterns, to improve chances of timing trades profitably.

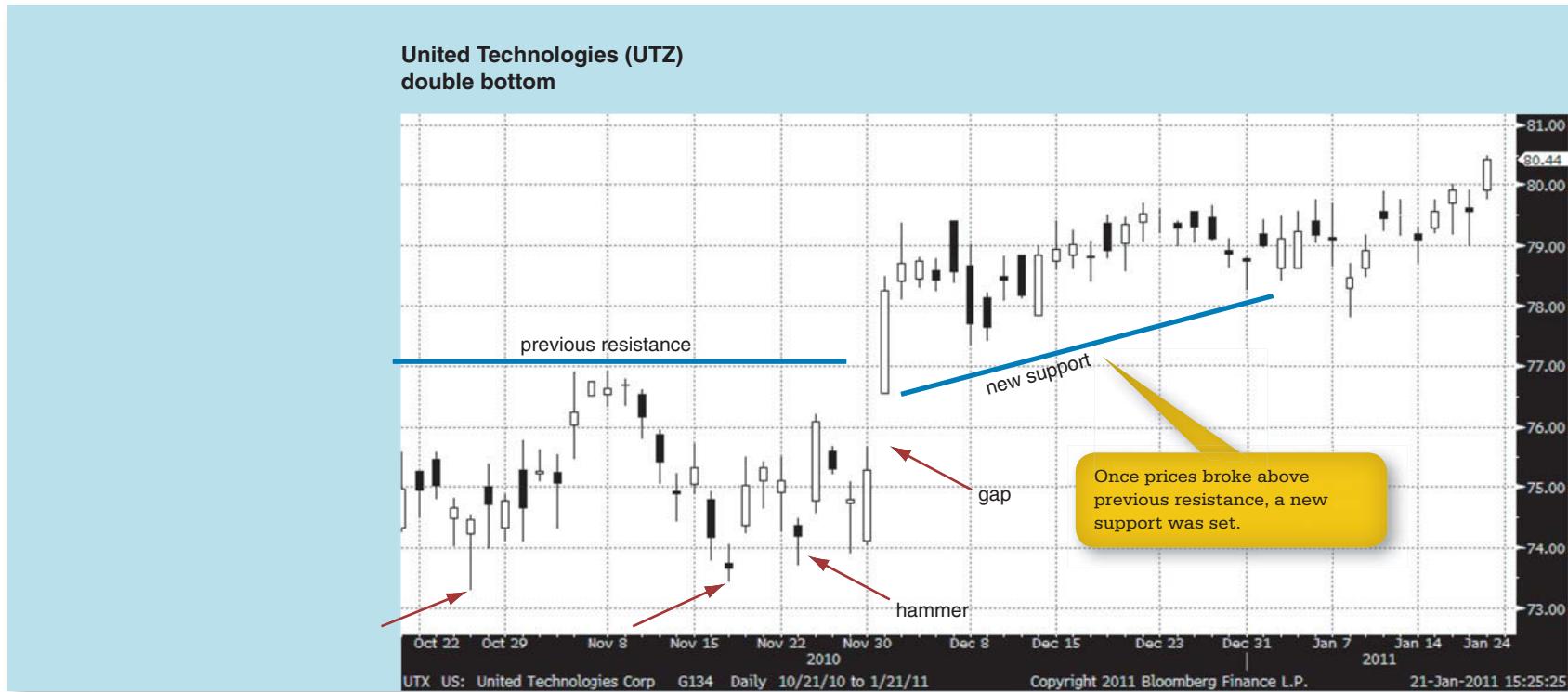
**double bottom** a familiar pattern seen in technical analysis, in which support is tested twice, followed by a trend moving in the opposite direction and often moving through resistance to create a new trading range.

The pattern may be confirmed by candlestick patterns or by a combination of independent indicators. It often also occurs that the level of previous resistance marks the beginning of a newly established support level in the uptrend that follows.

The chart of United Technologies (UTZ) demonstrates a double bottom and several subsequent signals. The second downward move forms a hammer, a bullish reversal signal. This is quickly followed by a very strong upward price gap and a long white session that moves rapidly through previous resistance. This also sets up a rising support level.

### KEY POINT:

Double bottoms can be single-day spiked, forming a "W" shape, or more rounded. These may also be distinguished by what Thomas Bulkowski terms Adam or Eve formations, in his book *Encyclopedia of Chart Patterns* (Wiley, 2005).



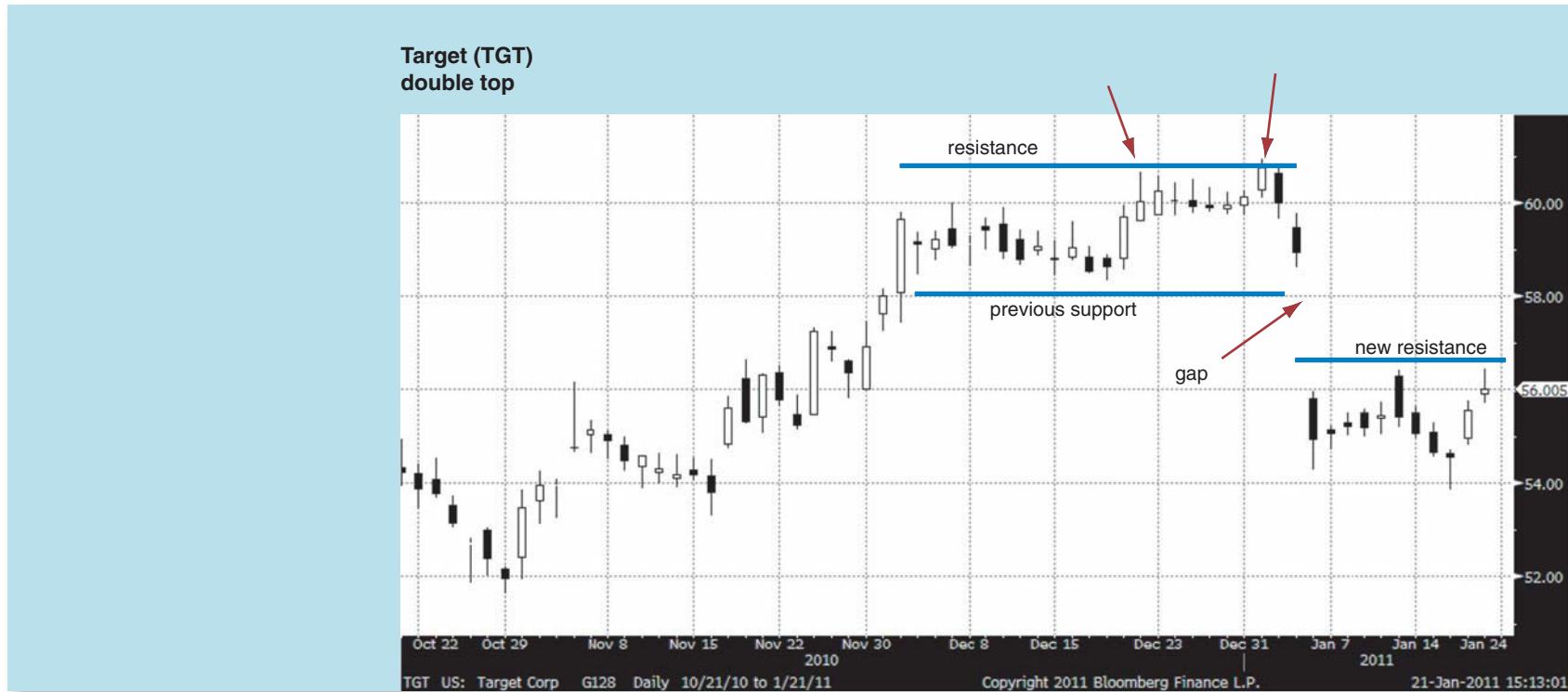
**double top** a pattern in technical analysis in which resistance is tested twice, but no breakthrough holds. It is followed by a strong downward movement and often by the establishment of a lower resistance level.

Confirmation may be found in candlestick or separate technical price patterns. The chart of Target (TGT)

shows a clear double top. The reversal is anticipated by several doji sessions preceding the reversal itself. This is further confirmed by the large downward gap, which violates support and then forms a new resistance level.

#### KEY POINT:

Like double bottoms, double tops may form as sharp price patterns (like an "M") or as more rounded shapes.



**downtrend** any movement toward lower prices, which may include specific characteristics and duration. The definition relies on which system is in play. As a general observation a downtrend is likely to favor the declining price, but it may also include interim peaks or offsets in price levels, which may be single sessions or small uptrends within the longer-duration downtrend, a pattern called retracement.

A downtrend defined as part of a swing trading strategy requires three or more consecutive sessions with lower high prices and lower low prices than the previous day. A short-term downtrend is normally marked by entry and exit signals including doji days (narrow range days), volume spikes, or upward sessions identifying the trend's specific reversal.

Under the principles of the Dow Theory, a distinction is made between market movements and trends. There are three movements: a primary or major trend, which may last several months or years; a second reaction or swing period lasting up to three months and characterized by a retracement of a portion of the primary trend;

and a short swing or minor movement lasting a month or more.

Market trends under the Dow Theory occur in three phases. In a bear market in which the downtrend dominates, the first phase is distribution, then public participation, and finally panic. Distribution involves active trading which, in a downtrend, means selling of shares; this occurs contrary to popular opinion, which tends to be buying while the downtrend's distribution phase is underway. Public participation begins when technical traders recognize the change and add to the selling pressure. Public participation takes place once the downtrend has been established and is well underway. By this time, the downtrend may be losing momentum; however, astute traders have made their moves ahead of the market and may be searching for the end to the downtrend and potential timing for reversal. The third phase is panic, where the majority of traders believe the downtrend will continue. So selling activity accelerates even as the downtrend comes to an end.

### KEY POINT:

A downtrend may involve as few as three sessions under a swing trader's definition, or it may extend months or even years as a technical primary trend. It may also be a retracement within a larger uptrend.

**KEY POINT:**

Eastern methods, candlesticks, are traced back centuries ago to rice future tracking in Japan. The modern trend is to combine Eastern with Western methods to expand and improve confirmation techniques.

**Eastern technical analysis** reference to Japanese candlesticks as the basis for chart analysis, trend spotting, and identification of continuation or reversal indicators. Candlesticks tend to create identifiable patterns based on a series of trading ranges, gaps, and breadth. In comparison, Western indicators rely on patterns created by ranges of price movement.

Eastern (candlestick-based) methodology is most effective when the price-specific indicators are employed

in cross-confirmation with Western indicators based on broader charting patterns. The two in combination provide not only confirmation or contradiction of what any one indicator points to as the next leg in a trend, but they also augment the overall recognition of trends, continuation or reversal, momentum, and volatility.

**entry signal** any indicator pointing to reversal of a previous trend or to the initiation of a new one, used when a trader is not in an open position and seeks the sign that timing is right to create a new position. Swing traders and day traders look for entry based on overreaction by price to immediate news and developments, recognizing that short-term price movements tend to pause and retreat within a few sessions. The interim reaction presents many entry opportunities.

Many systems are used by traders to time entry into either open long or short positions. These include the use of stop-loss orders at the time of entry. A trade position can also be left open to ride using a trailing stop.

Another entry system mixes entry with the timing of exit. For example, the 50 percent rule states that once a position gains a predetermined percentage of profit, one-half of a long position is sold, or one-half of a short position is bought to close.

A third entry system is based on repetitive and unusually strong gapping action. For example, if a stock gaps in one direction three times in five consecutive sessions, a trader may expect some filling action and will make entry in the direction opposite of the gaps. If an open position exhibits the same kind of gapping movement in a desired direction, it will be taken as an exit signal based on the same rationale and expectation of reversal.

### KEY POINT:

There is no single entry signal or system used by traders to time trades. The important feature of price movement is to recognize that the entry price is not a starting point, but the current price within a longer-term timeframe.

**KEY POINT:**

Recognizing exhaustion by gapping action and higher than average volume creates a valuable reversal signal and confirmation device.

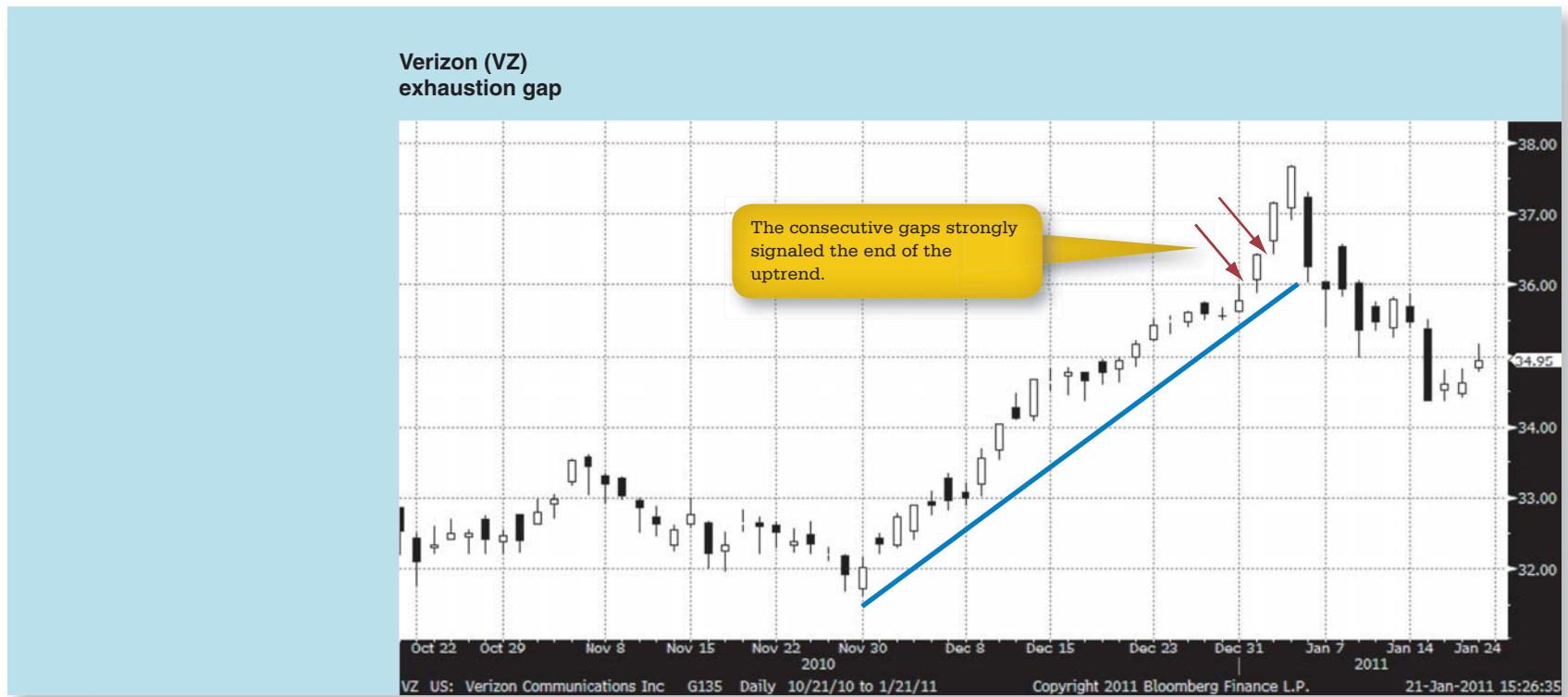
**exhaustion gap**

a type of gap in price that comes after a strong move in one direction or the other. It signals the closing out of the trend, a loss of momentum, and very likely reversal to follow soon.

This type of gap signals the end of the trend and may also serve as part of a candlestick reversal pattern. It may also confirm separate reversal indicators, providing a valuable form of Western confirmation of other Western signals or of Eastern signals. However, exhaustion gaps can be confused with the beginning of a trend of runaway gaps. Exhaustion can be distinguished by unusually high volume at the point of the gap, a situation not likely to accompany runaway gaps.

The most important aspect of the exhaustion gap is the degree to which it confirms reversal. For example, Verizon (VZ) experienced a long uptrend, and then price had a double exhaustion gap. This signaled the end to the uptrend and was followed by a downturn in price. The long black session that followed confirmed the gaps as exhaustion gaps and set up the reversal.

Chevron (CVX) experienced an exhaustion gap after a short downtrend. The exhaustion gap also marked a failed breakout move below support; this example shows how price may turn immediately and move in the opposite direction after the exhaustion gap appears.





**exit signal** any system, indicator, or method applied by traders to identify when to exit from an open position. Many exit signals employ candlestick indicators, either alone or as confirmation for other technical turning points.

One method for creating exit is through the use of specialized orders such as a stop loss order (or the trailing stop, a variation of the stop loss). This automates the action of exiting a position, although actual execution can be delayed. As a consequence, the action begins at a specified price point, but it does not ensure that the trader closes the position at the desired price. If a security's price is changing rapidly, it invariably means that order volume is high, so a stop loss order may be delayed in execution.

Another system involves closing part of a position in order to take profits while leaving the remainder of the position open, in the hope that additional profits will be earned in future price movement (or that by taking part of the profits, future losses are minimized).

The most reliable form of exit order is the use of price patterns to identify changes in momentum. Dozens of candlestick indicators provide traders with reliable

signals anticipating reversal. These include patterns emerging due to change in momentum within the current trend. When candlestick indicators are used in cross-confirmation with other technical signals, timing of exit is vastly improved.

Candlestick indicators may be coordinated with price approaching, testing or crossing resistance, or support levels. These trading range borders may serve either as targets to take profits or cut losses; they may also be used to confirm turning points found in either candlestick indicators or other technical signs. Among these are any that are associated with resistance and support, such as head and shoulders or double top/bottom price movement. A breakout may lead to a new trading range, or it may retreat and fill. The uncertainty of a breakout in the immediate sessions after it occurs make exit signals valuable, especially if they can also be independently confirmed. Another possible outcome is testing of the borders with failure, which most technicians see as a prelude to price movement in the opposite direction. This may also serve as a strong exit point, especially if the shift in momentum is confirmed by candlestick patterns.

### KEY POINT:

Various exit signals are developed and applied by traders and no one system ensures good timing. Finding a method that improves the percentages is a worthwhile goal.

**KEY POINT:**

EMA is an efficient method for weighting a moving average. It is built in automatically on charts employing EMA and does not have to be manually calculated.

**DO IT YOURSELF**

To calculate EMA:

1.  $2 + n = e$  (where  $n$  is the number of values in the field being averaged)
2.  $t + n = a$  (where  $t$  is the total of field values,  $n$  is the number of values in the field, and  $a$  is the resulting average)
3.  $v \cdot e = c$  (where  $v$  is the next value in the series,  $e$  is the exponent calculated in step 1, and  $c$  is the sum of step 2)
4.  $c + a = ema$  (where  $c$  is the sum of step 3 and  $a$  is the sum of step 2)

The complete formula:

$$[(V_p - [(V_1 - V_2 + \dots V_n) + n]) \times (2 + n)] + P = EMA$$

where  $V_p$  = previous EMA

$V_1$  = first value in the field

$V_2$  = second value in the field

$V_n$  = final value in the field

$n$  = number of values in the field

$p$  = previous EMA

EMA = new EMA

**exponential moving average (EMA)** a method of weighting a moving average and calculating each new entry in an abbreviated manner. This is used in many technical indicators using multiperiod averaging. The EMA is calculated and added to charts automatically on many websites offering charting services. The following brief explanation of EMA is intended to explain how it is calculated, but it does not imply that it needs to be done by hand in every situation.

The first step is to calculate the exponent to be used. The value 2 is divided by the number of values in the field (the value of  $n$ ). For example, for a 50-day moving average, the exponent is:

$$2 \div 50 = 0.04$$

In this case, the exponent is 0.04. All of the values in the field are added together for the first entry, and the sum is then divided by the number of entries in the field. Once this average is calculated, it is easy to calculate EMA for each new field. The net difference between the new value and the average is multiplied by the exponent

(0.04 in the example), and the resulting value is added to the previously set average.

For example, a 50-day field adds up to a total of 97,400. The first step is to divide this by the number of values to find the average:

$$97,400 \div 50 = 1,948$$

The next entry, for example, may be 2,106. Multiply this by the exponent:

$$2,106 \times 0.04 = 84$$

Add this to the previous average:

$$84 + 1,948 = 2,032$$

This is the new moving average entry. Once you have a moving average, calculation is a two-step process: Multiply the new field by the exponent, and add that to the previous average (if negative, subtract it).

EMA is an important method used in many technical indicators, so traders benefit by understanding that it is a weighted total, adding more influence to the latest entry in the field than to previous entries.

**failed pattern** any indicator pointing to a change that does not materialize. Any indicator can fail, including both candlesticks and traditional Western signals for reversal or continuation. Failed patterns occur often enough in price chart analysis, pointing to the importance of confirmation.

Even confirmation does not guarantee that a promised reversal will occur as the indicator shows. However, it does improve the accuracy of both entry and exit to rely on strong patterns and confirmation of them. Candlestick indicators may be confirmed by other candlestick patterns or by price changes such as gapping, narrowing trading ranges, or tests of resistance and support. All of the traditional Western indicators can also be confirmed by one another or by candlestick signals occurring at or near the same trading point. Any of these price-based indicators including a session's activity is also confirmed by momentum oscillators, price-based moving averages (especially analysis including

convergence and divergence of two separate moving averages), and finally by specific indicators based on analysis of volume trends.

Confirming indicators do not always agree. It is equally important to note that in some instances, mixed signals result from seeking confirmation. When this occurs, traders must decide which side of the contradiction to follow. If the planned action is entry, it makes sense in cases of contradictory indicators to wait out the trend and see what emerges in coming sessions. If the planned action is exit, it is most prudent to take profits or cut losses whenever the next movement cannot be identified due to contradictory indicators.

Failed patterns occur in varying percentages. Some indicators are clearly stronger and more reliable than others. Traders who rely on single indicators may lose more from failed patterns than those who wait for confirmation and act only when the same action is indicated from separate signals.

### KEY POINT:

Any signal can fail, even those that are confirmed strongly. The purpose to using indicators and confirmation is to improve timing, but timing is never going to work at 100 percent. That is the reality of any charting system.

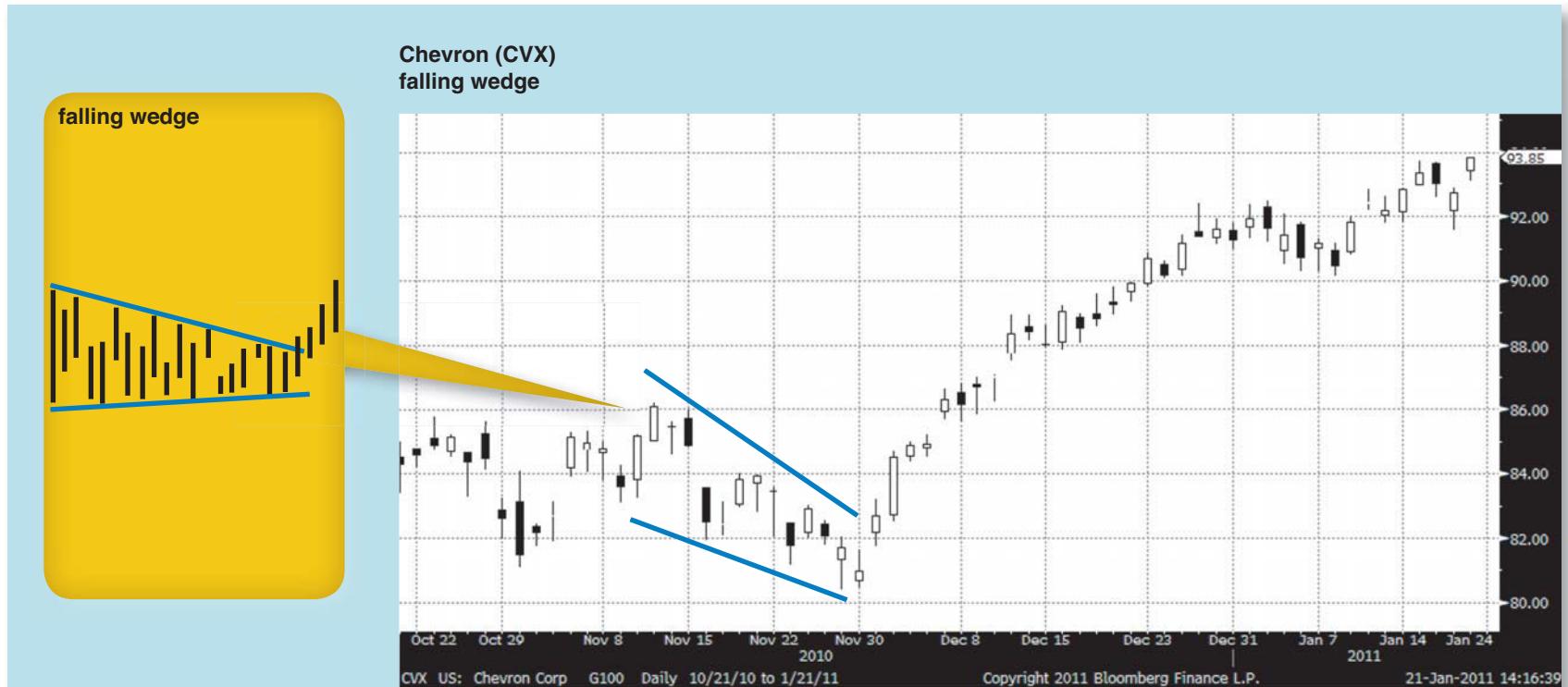
**falling wedge**

a bullish trend that may last only a few sessions or extend over a wider time period. It is characterized by a decreasing range over time with its origin wider and its conclusion narrower, and the trading range trending downward. The actual bullish trend is realized only when prices move above the wedge range and move to the upside in a breakout above resistance.

Chevron (CVX) experienced a falling wedge that lasted approximately three weeks. It fits the definition

because of the strong breakout above resistance that marked the end of the wedge. This was the start of a sustained uptrend.

Confirmation consisted of the breakout and gapping price action that recurred for two weeks in a strong uptrend. The long white candlestick appeared two sessions after the breakout provided more immediate confirmation, revealing that it was unlikely that price direction would reverse and fall to the downside.



**KEY POINT:**

The Fibonacci retracement is mathematically interesting, but it is more. It is used to estimate point where price is likely to reverse. The features found in the levels of 62 percent and 38 percent derived from this mathematical oddity are the key.

**Fibonacci retracement** a series of ratios used in some technical indicators to predict price movement or reversal. It is one of many indicators that adds to both initial and confirming information about continuation or reversal of a current price direction.

The retracement is used most often for identifying likely reversal points within price trends. The sequence consists of the sum of the previous two numbers in a series. Thus, beginning with zero and 1, the Fibonacci retracement sequence is:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610 ...

Chartists identify likely reversal following a price trend. The retracement level is equal to a specific percentage move from the base, after which a pullback and reversal is expected.

The most popular percentages used to estimate retracement are 62 and 38. These are rounded values. The 62 percent is the approximate value of each entry in the series, of the value that precedes it. For example:

$$55 \times 62\% = 34$$

$$89 \times 62\% = 55$$

The 38 percent value is the approximate value of any sum of the value of two entries preceding it in the sequence. For example:

$$55 \times 38\% = 21$$

$$89 \times 38\% = 34$$

Chartists employing retracement may estimate the degree of move from one point to another in the opposite direction, representing correction or pullback of the price peak or valley. The technique is named for Italian mathematician Leonardo of Pisa (Leonardo Pisano), also called “Fibonacci,” the name derived from *filius Bonacci*, or “son of Bonaccio.” However, the sequence was known in mathematics before Fibonacci’s life (1170–1250), for example in India.<sup>1</sup>

For many technicians, this retracement method identifies likely levels of existing or evolving resistance or support, based on degrees of price movement and reversal tied to the 62 percent and 38 percent levels.

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<sup>1</sup>Susantha Goonatilake, *Toward a Global Science*. Bloomington IN: Indiana University Press, 1998.

**fundamental analysis** a form of analysis based on the study of a range of ratios and trends of companies apart from price and volume tracking. Fundamental analysis is restricted to historical indicators found on the balance sheet and income statement and related financial results.

Some indicators combine fundamental and technical input. The best known of these is the price/earnings ratio (P/E). This is a comparison between a technical indicator (price per share) and a fundamental one (earnings per share).

Strictly fundamental indicators include tests of working capital (current ratio and debt ratio); capitalization tests (total shareholders' equity compared among

companies to identify the difference between large-cap, mid-cap, and small-cap companies); return testing of many types (return on equity or net worth, or return on revenue, for example); and trends measuring changes in revenue, net profits, or net return.

For technicians, fundamental indicators are used as an initial method for stock selection apart or in conjunction with technical tests. Investors may identify exit points for stock ownership based on changes in fundamental tests, or rely strictly on price and volume trends. Both approaches may use candlestick indicators and other technical trends to determine entry and exit points.

### KEY POINT:

Fundamentals do not have to be chosen to the exclusion of technical indicators. Portfolio selections can be used as a means for narrowing down selections of securities based on profitability, capital strength, dividend yield, and working capital. The price is then tracked with technical indicators.

**KEY POINT:**

Gaps are very common, and the study of most price charts demonstrates this. The difficulty is distinguishing between the often-occurring common gaps from those that form as part of a significant signal.

**gap** differences between the closing price of one session and the opening price of the one that follows. Gaps often act as part of a larger indicator, notably as part of candlestick signals. They may also accompany strong breakouts or trend reversals. If a gap is created and continues, it implies strength in the direction of movement. If price reverses and fills the gap, it is a sign that the attempted movement of price lacked adequate momentum.

Many gaps are common gaps and have no special significance other than in the way they form or become part of a large indicator. Among the kinds of gaps are:

- common gaps, recurring and frequent spaces between close and open of sessions that do not have any trend-based meaning.
- exhaustion gap, a gap showing up at the end of a trend and representing the last move prior to reversal.
- breakaway gap, one that represents growing momentum in a trend and the potential for setting a new

trading range, usually accompanied with exceptionally high volume.

- runaway gaps, a series of gapping price movement in one direction and a symptom of a strong or growing trend.
- hidden gap, one that forms between sessions but is not immediately visible.

Several candlestick formations involve gaps and the distinction between those that do not get filled (such as upside or downside tasuki gaps) and those that are filled (upside or downside gap filled).

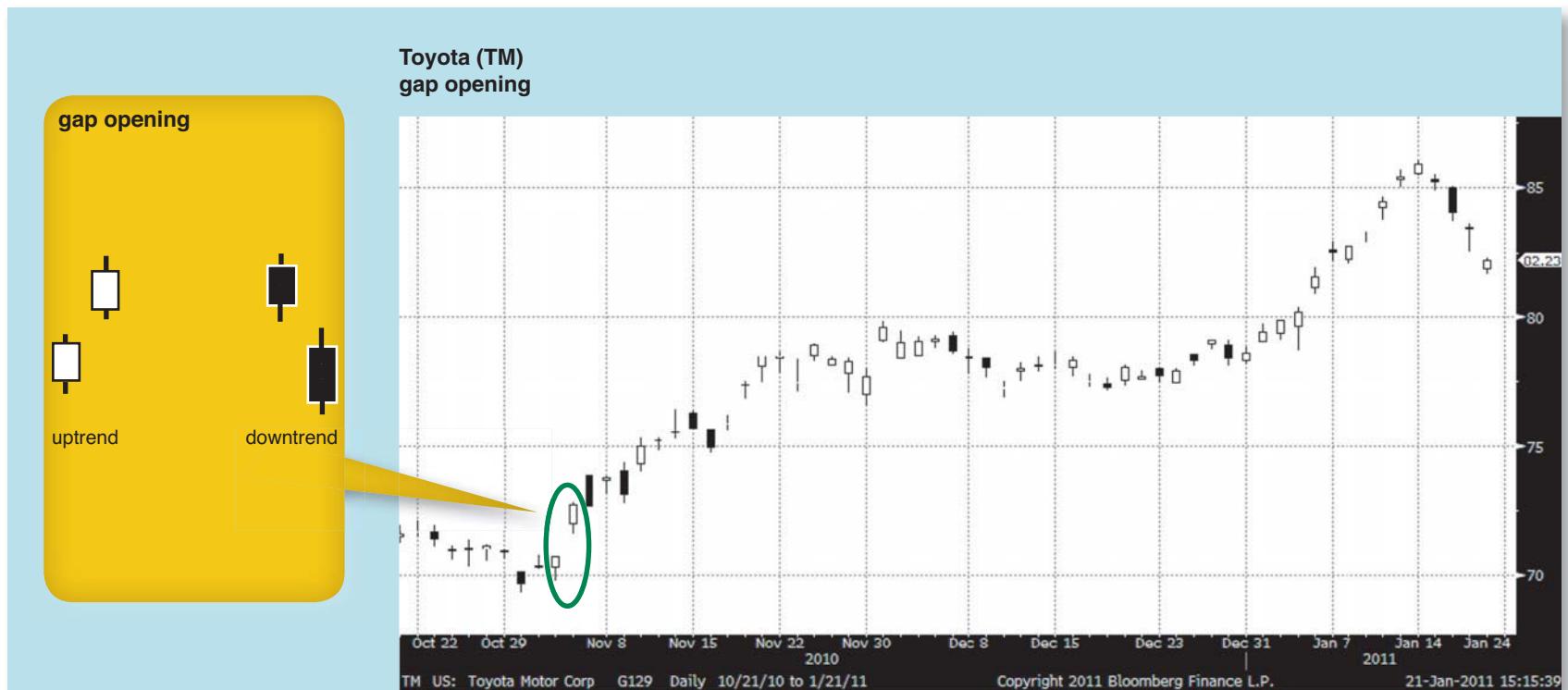
Gaps occur often in many charts, and many are hidden. The chart of Yahoo! (YHOO) identifies many common gaps (in red) as well as hidden gaps (in blue). These are hidden because the real bodies of each session overlap; however, there is a gap between close and open even with the overlapping trading range.



**gap opening** a gap, often significant, between one session's closing price and the next one's opening price. This may occur due to unusually news or rumor, especially after the first session's close. If the gap does not close within the session, it indicates that the price direction is likely to continue.

In the case of Toyota (TM), the gap opening moved to the upside. Although the point movement was not

wide, the size of the gap relative to price movement both before and after the gap was large. Subsequent price direction was also upward, and after sideways adjustment the uptrend continued to the conclusion of the period charted.

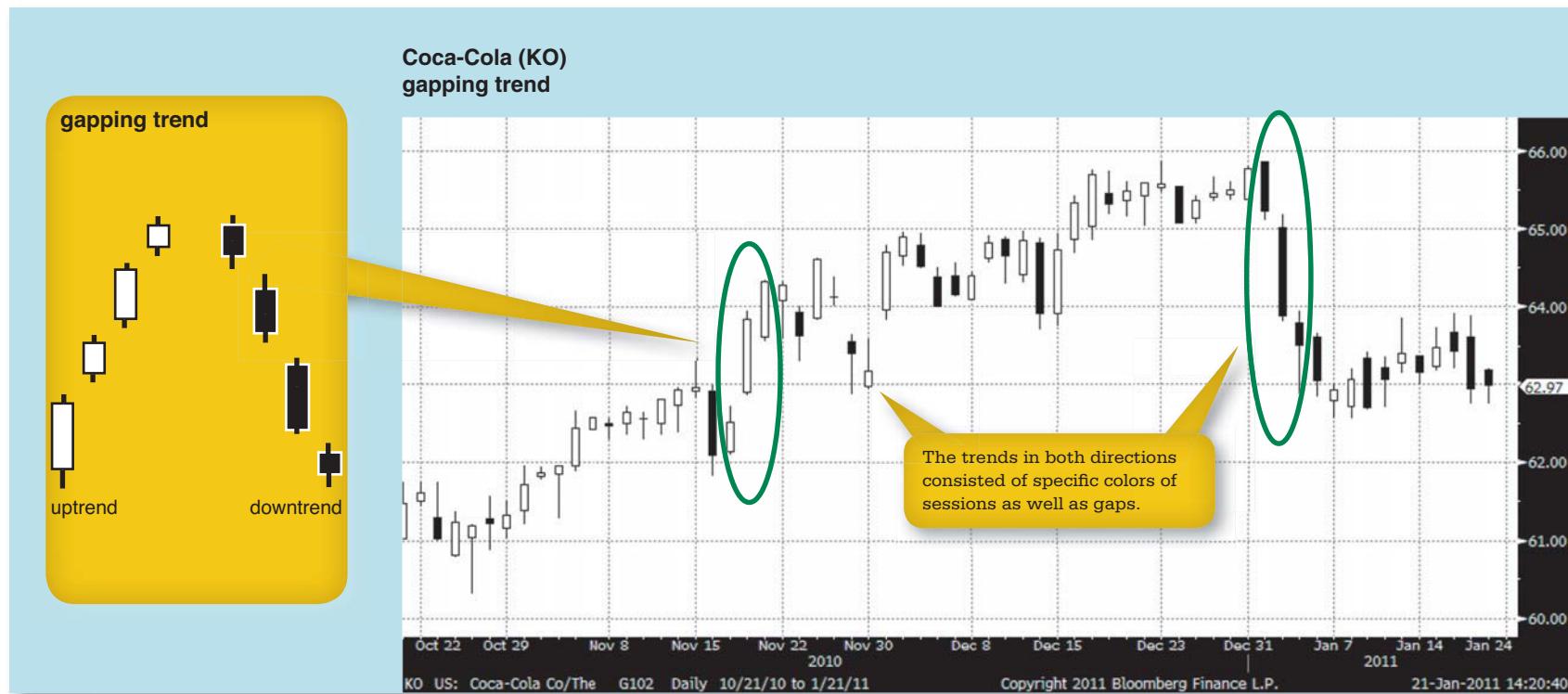


**gapping trend**

a series of sessions in which several sessions display gaps in one direction. This may be an uptrend or a downtrend. The occurrence of numerous gaps may represent a breakout above resistance or below support, or the trend may lose momentum and prices later fill all or part of the gapping trend.

Coca-Cola (KO) showed two gapping trends on its chart, one in each direction. The two patterns are quite

similar, with consecutive gaps revealed in three sessions and then a fourth nongapping session moving in the same direction. The duration of the gapping trend varies. The more gaps occurring in a single direction, the greater the momentum.



**KEY POINT:**

The head and shoulders pattern is one of the best examples of price tendencies. After a failed attempt at breaking out above resistance, buyers lose momentum and prices then tend to retreat in the opposite direction. It is the failed attempt that signals the likely reversal and downtrend.

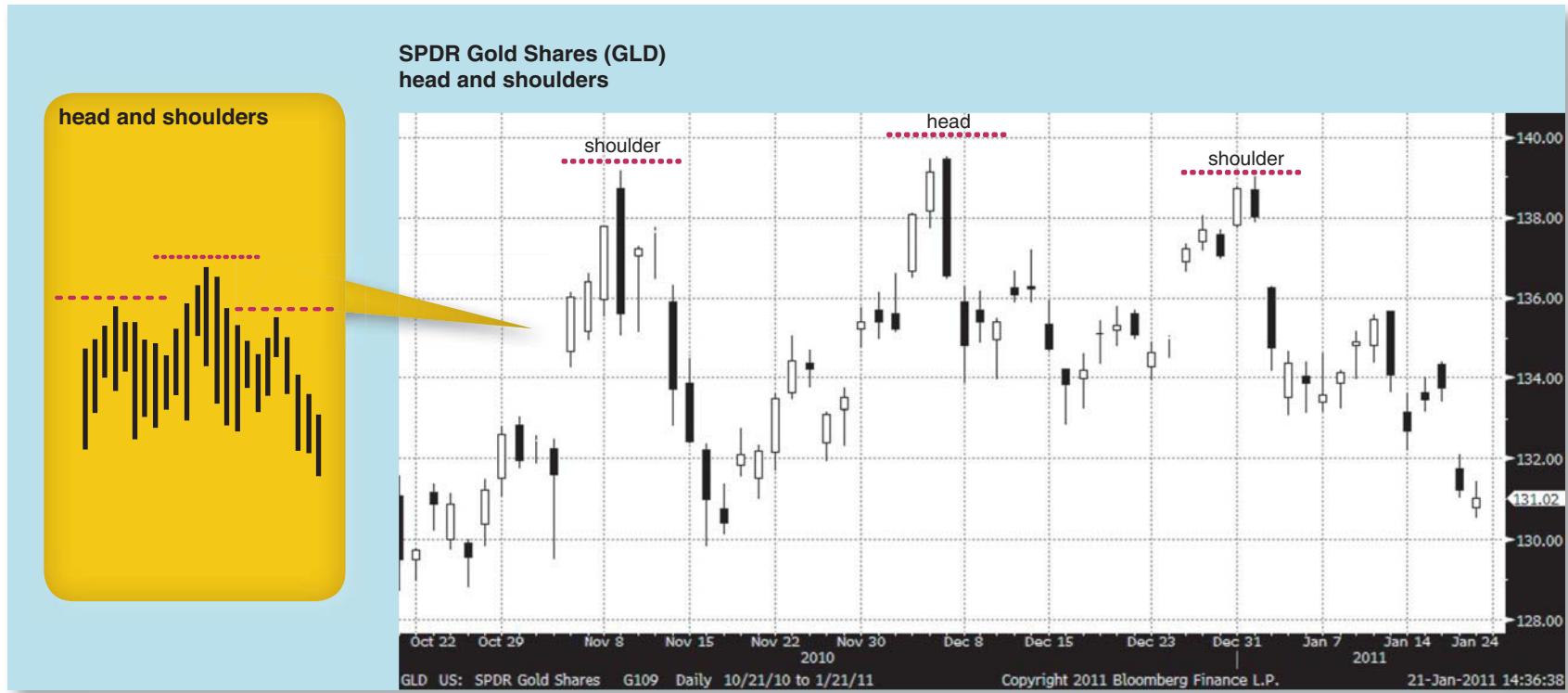
**head and shoulders**

a price pattern that tests resistance without breaking through, often followed by price movement in the opposite direction. It consists of three peaks. The first and third are the shoulders, and the middle (second) is the head. This highest of the three price spikes may test or momentarily break through resistance.

The loss of momentum represented in this pattern is bearish and, especially when confirmed with candlestick

reversal signals, is reliable as a signal of the conclusion in the uptrend.

The chart of SPDR Gold Shares (GLD) patterned a head and shoulders over a period of nearly two months. The price dips in between the three peaks defines the shape clearly. Confirmation of the bearish reversal is found in the large downside gap immediately after the second shoulder and then again 10 sessions later.



**KEY POINT:**

Hidden gaps occur frequently, meaning that important signals involving gapping trends are easily missed.

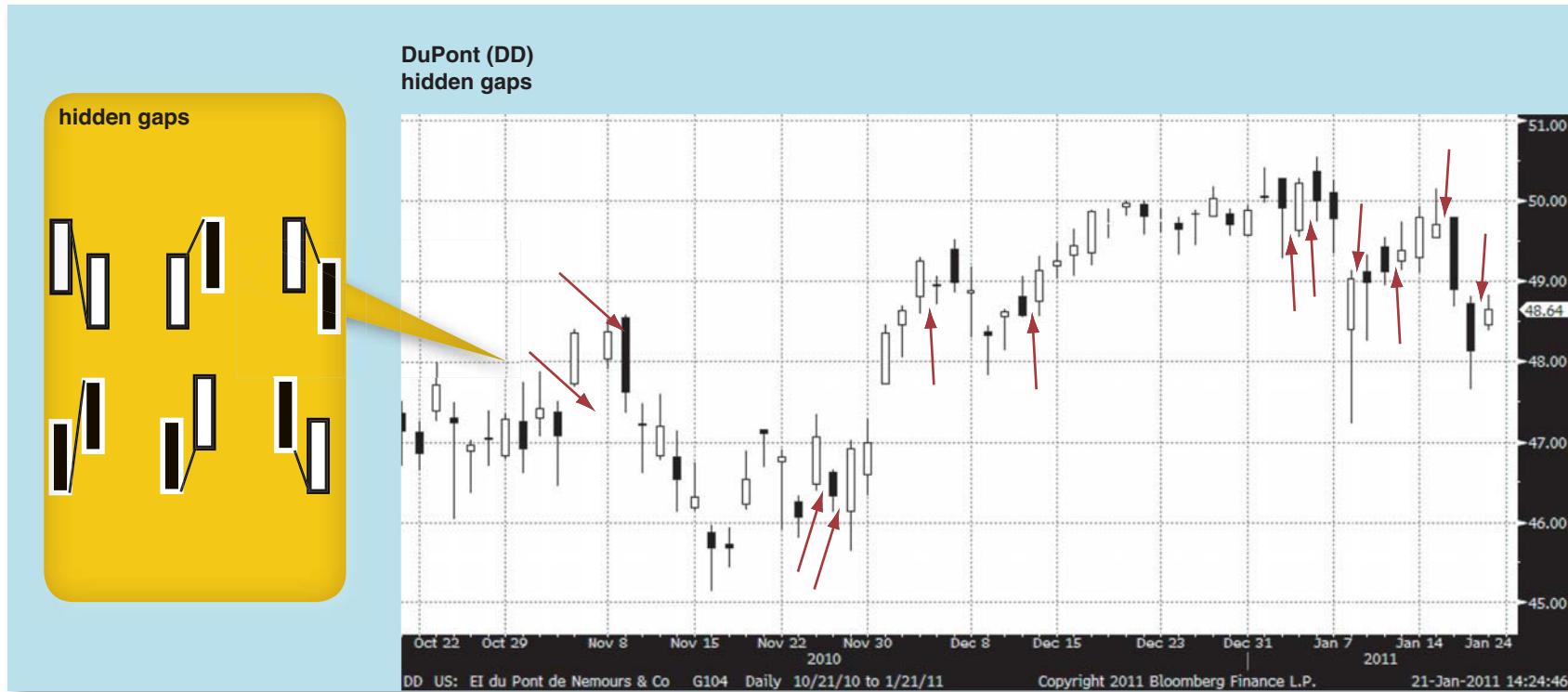
**hidden gaps**

patterns in which real bodies of consecutive sessions overlap but create a price gap that is not immediately visible. This may occur in any pattern type (white-white, white-black, black-black, or black-white) and in either an upward or a downward direction.

The hidden gap occurs often in the normal course of trading and is most likely to represent one of several common gaps. However, when its significance in terms

of price direction, reversal, or momentum has greater meaning, it is easy to overlook the hidden gap as one of the important factors in timing entry or exit.

The chart for DuPont (DD) shows 12 hidden gaps on the three-month chart. None of these is visible at first glance, but all present a case in which a price gap was found between the first day's close and the second day's open.



**KEY POINT:**

In Japan the cloud is called *Ichimoku kinko hyo*, which means "at a glance equilibrium chart."

**KEY POINT:**

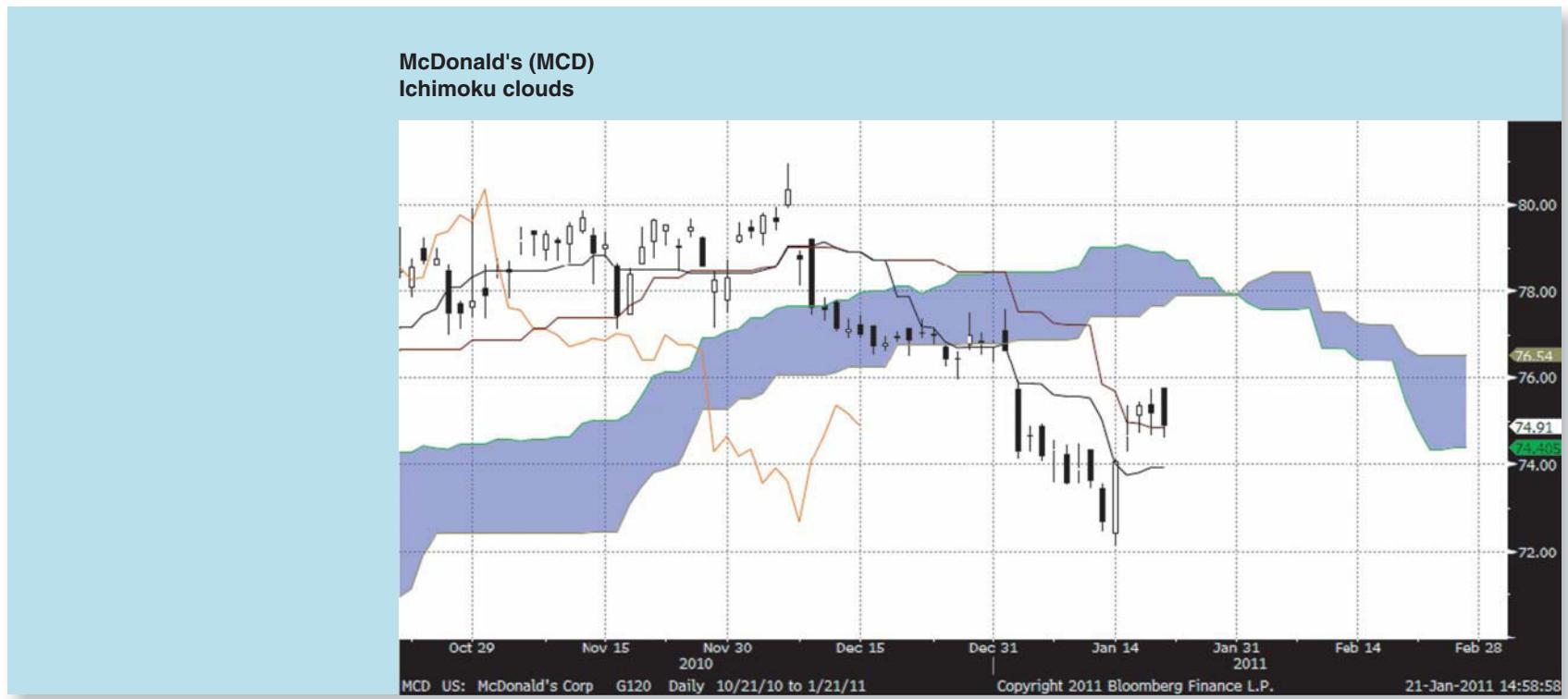
The complexity of calculating Ichimoku clouds leads many traders to overlook the cloud's significance: the combined indicators predict momentum based on evolving support and resistance, a powerful combination of price predictions.

**Ichimoku clouds** an Eastern technical indicator developed by Goichi Hosada, a newspaper reporter. The cloud chart predicts coming resistance and support levels and changes, strength or weakness in the existing trend, and candlestick-based advanced signals.

The Ichimoku cloud chart is constructed using not only moving averages of price, but daily high and low price levels as well. It develops five separate lines. The first two are the highest high and the lowest low over nine sessions. The third line is an average of these two lines, calculated over 26 sessions. The fourth and fifth are leading span lines. The first leading span is the base line average of 26 sessions, divided by two and plotted for 26 periods forward (beyond the latest price data). The second is the highest high and the lowest low for the past 52 sessions, divided by two and plotted for 26 future periods.

The space between the fourth and fifth forward estimates is the cloud portion of this chart. The cloud itself can be adjusted by changing the 26 session and 52 session periods used to create it. The two future-plot lines are a representation of the relationship between the 9 session and the 26-session moving averages.

The calculation is a complex one to perform by hand, since it demands not only moving averages but also forward estimates of price changes. However, online sites provide automatic Ichimoku cloud chart calculations. For example, the illustration shows how this calculation is applied to the chart for McDonald's (MCD). The perimeters of the calculated future price trends reveal the future convergence and divergence of the averages. However, unlike technical indicators like moving average convergence/divergence (MACD), the Ichimoku technique carries the estimates into the future by approximately one month.



**KEY POINT:**

The inverse head and shoulders is one of the most reliable bullish reversal signals. The failed attempt at breakout below support is a visual signal of lost momentum among sellers, and this leads to a bullish reaction.

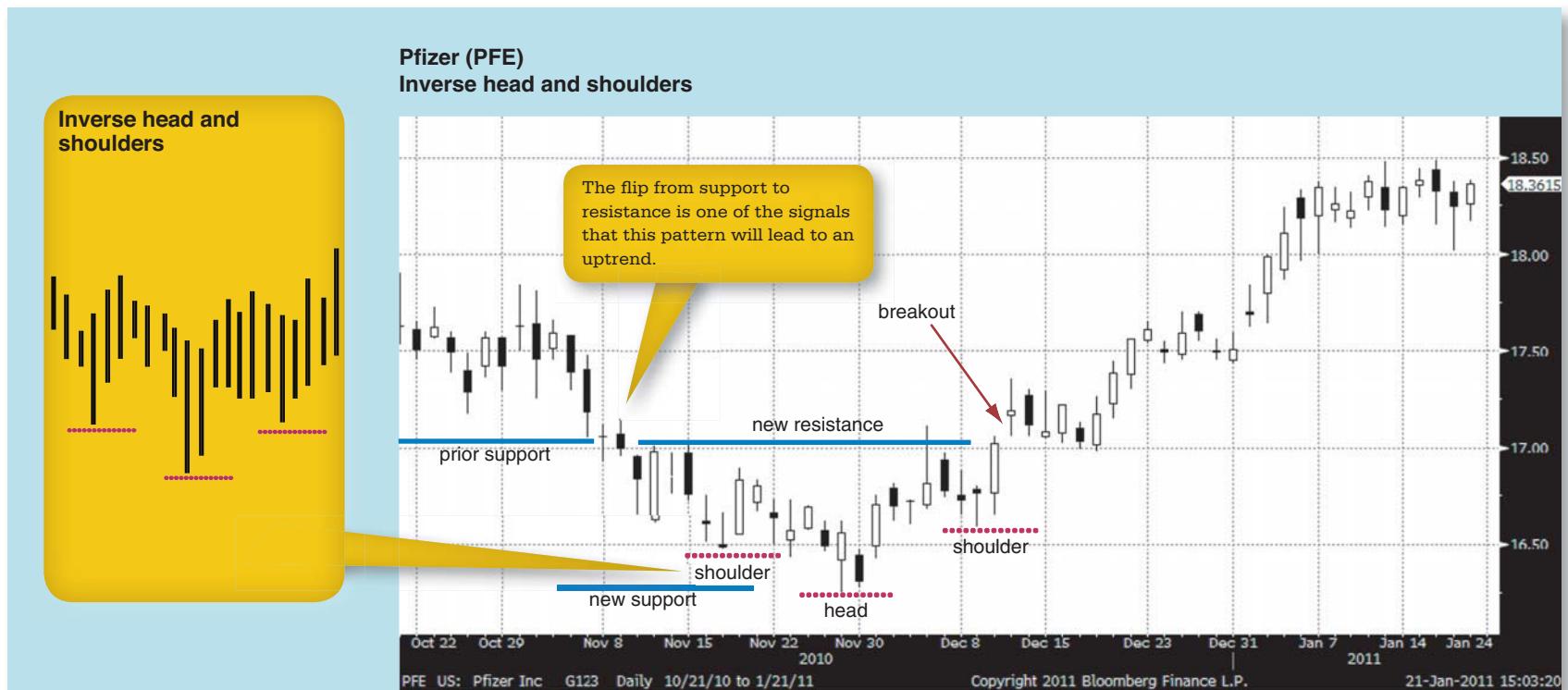
**inverse head and shoulders** a pattern of price changes and reversal of an existing downtrend. This may confirm candlestick indicators or those indicators may be confirmed by the development of the inverse head and shoulders.

Like the bearish head and shoulders, this is a bullish signal in which an attempt to break below support level fails, and it is followed by price movement in the opposite direction. It may lead to a breakout above resistance and replacement of prior resistance as a new level of support.

There are three distinct sections in the inverse head and shoulders. First is a fall in price followed by an upward reversal. Second is another price decline below the bottom of the first, a test of support, followed by another

reversal to the upside. Third is the second shoulder, a decline in price that does not move as low as the middle decline, followed by a rise that continues moving upward. Prices then approach resistance and may break through its neckline to establish a new trading range and strong uptrend.

The chart of Pfizer (PFE) met all of the criteria in its reversal of a downtrend. The inverse head and shoulders fell below the prior support, and that level created a new resistance line. The inverse head and shoulders tested the new support but failed to break through. Prices then rose and surpassed resistance, and the success of the breakthrough was confirmed over the five sessions after the upward gap, which did not retreat but instead resulted in a strong uptrend.



**KEY POINT:**

Momentum is a measurement of a trend's strength or weakness. It forms the basis for reversal and, as it slows, tracking momentum improves entry and exit timing.

**momentum** the degree and speed of changes in price or volume of a security. The causes of momentum may be fundamental (earnings announcements, sales growth, or improved market share) or technical (shifts between buyer and seller activity or changes in moving averages due to institutional buying or selling, for example).

Traders are likely to respond more immediately to technical momentum than to more subtle changes in fundamental strength or weakness. As a result, momentum most often is applied to price and volume than

to revenues and earnings. Momentum is measured in dozens of ways through Western indicators, as well as through candlestick patterns and indicators. Extremely long candlesticks, for example, demonstrate a wide range between opening and closing price. However, equally important is the extension of upper and lower shadows, which reflect failed attempts by buyers (upper shadow) or sellers (lower shadow) to move price further. Once trading occurs above or below and then retreats to close within the lower range, the shadow extension is a signal of changes in momentum.

**momentum oscillator** an indicator that measures the speed or change in price or volume, or changing rates of acceleration and deceleration in those movements. Momentum is a key measure of trends, so oscillators are the most important measurements in technical analysis. When combined with studies of price movement in relation to resistance and support, it is possible to gauge the likelihood of breakout or retreat. Trends tend to lose momentum when breakout is attempted but fails, and price often moves in the opposite direction after testing the trading range's edges.

Oscillators also work well with candlestick indicators. Candlesticks are visual representations of changes in trends, most notably in how momentum increases or decreases. An oscillator may indicate that momentum is weakening, and candlestick reversal indicators identify the turning point when momentum is likely to begin moving in the opposite direction. Momentum oscillators may also confirm what candlestick indicators forecast in the immediate future.

Two additional price patterns are significant: candlestick shadows and price gaps. A candlestick's shadows are further measures of declining momentum. The longer the shadow, the higher the possibility that the indicated side of the trade is losing momentum (buyers with upper shadows, or sellers with lower shadows). Price gaps work both within specific indicators and separately as part of Western technical analysis demonstrating increasing

momentum. Interpretation is a matter of understanding how the strength of oscillators affects price movement. For example, rapid gapping prices may lead to retreat and fill patterns, especially if this occurs close to resistance or support. Or, when momentum is growing along with gapping trends, it may point to a coming breakout and establishment of a new trading range. Both of these possibilities have to be considered, and the likelihood of each can be confirmed by observing how candlestick indicators interact with the Western signals.

When momentum indicators are used as initial, or leading indicators, they are expected to be confirmed by candlesticks or by other Western-based technical signals. Popular among those momentum indicators serving as leading indicators are relative strength index (RSI), which compares buyer and seller momentum to judge which is in control; various forms of price moving averages; and moving average convergence/divergence (MACD), which tracks two moving averages and looks for crossover points as a means of anticipating near-term changes in momentum. Additional momentum indicators are designed to identify overbought and oversold conditions for trading and trying to time the market. Some are also based on changes in volume. For example, on-balance volume (OBV) is cumulative as it adds or subtracts volume control over several periods.

### KEY POINT:

Oscillators have two important attributes for traders. First, they work very well in cross-confirmation with candlestick signals. Second, they may be the best entry and exit timing devices because slowing momentum is itself a powerful predictor of pending reversal.

**money flow** a measurement of changes in stock price based on studies of price range and trading volume. The purpose is to identify whether buyers or sellers controlled the direction of change, and to what degree. This is different from the easily observed direction of price movement because it further studies the

momentum of price beyond the point changes. Most technical indicators based on money flow create an index to measure change. The purpose is to not only identify whether buyers or sellers are in command, but to anticipate and recognize when a security is overbought or oversold.

**money flow index (MFI)** an oscillator combining price and volume to measure strengths or weaknesses (and evolving changes in each) among buyers and sellers. The indicator is also called volume-weighted RSI (relative strength index), because the initial calculation of rising or falling prices is then used to create an oscillator based on the RSI formula. The resulting oscillator ranges between zero and 100. This is a valuable indicator

## DO IT YOURSELF

To calculate MFI:

$$1. (H + L + C) \div 3 = T$$

where: H = daily high

L = daily low

C = daily close

T = typical price

$$2. T \times V = R$$

where: V = daily volume

R = raw money flow

3. Calculate the sum of both positive and negative money flow over the past 14 periods:

$$PR \times pp = PRMF$$

$$NR \times np = NRMF$$

where: PR = positive raw money flow periods

NR = negative raw money flow periods

pp = number of positive periods in the past 14

np = number of positive periods in the past 14

(note: the sum of n periods must equal 14)

PRMF = positive raw money flow

NRMF = negative raw money flow

$$4. PRMF \div NRMF = MFR$$

where: MFR = money flow ratio

$$5. 100 - (100 \div (1 + MFR)) = MFI$$

where: MFI = money flow index

for anticipating coming reversals. It may either confirm reversal indicators in candlesticks or be relied upon as confirmation for what the same candlestick patterns predict.

The calculation of MFI is typically based on a 14-period study, with each new period added as the oldest is subtracted. The formula creates a “typical” price, which is the average of the daily high, low, and close, and then multiplies the average by the daily volume.

MFI is employed to identify when a security is overbought or oversold. The index ranges from zero to 100. When the level is greater than 80, the security is assumed to be overbought; when it falls below 20, it is undersold. However, the reliability of the index by itself is questionable as the indicator may lag behind rapidly developing price changes. Because of this, analysts often wait for the level to exceed 90 before acknowledging an overbought signal, or below 10 on the undersold side.

Chaikin Money Flow (CMF) provides a more accurate summary of the money flow trend, because it calculates the range of changes each day rather than relying on the “typical” price average between high, low, and close.

## KEY POINT:

MFI is an oscillator that is easily understood and used to confirm reversal. It ranges between zero and 100 with key signals above 80 or below 20.

**KEY POINT:**

Moving average is a valuable tool for managing trends in price. However, like all statistical tools, it is easily misused and misunderstood.

**DO IT YOURSELF**

To calculate a simple moving average:

$$(V_1 + V_2 + \dots + V_n) / N = SMA$$

when:  $V$  = value

$N$  or  $n$  = total number of values in the field

SMA = simple moving average

**moving average (MA)** also called a rolling or running average, a method of tracking stock prices or any other factor, in which a set of values (the field) are added together and then divided by the number of values. For example, if there are five values in a field, they are added together and then divided by 5 to find a simple moving average.

Many technical indicators rely on averaging to track evolving trends over time. The field (number of values) remains set and as each new value is added, the oldest is dropped off. For example, a 20-day moving average always consists of the past 20 periods. The field of 20 periods is averaged by adding the 20 values together and then dividing the sum by 20.

The value of using averages to track stock prices and other trends is to smooth out the short-term and nonrecurring value spikes and fluctuations. In reviewing the latest price data, chartists will discover that variations between sessions make it difficult to identify the trend or how it is growing or weakening over time. The MA solves this problem.

The simple moving average described above may also be termed a nonweighted simple moving average. This means that each value in the field is given the identical value. A field of 20, for example, is added together and divided by 20. In a weighted moving average, one of several methods is used to provide more influence to the latest data than to the oldest data. A basic form of weighted moving average is to count the latest value twice. For

example, in a field of 20 closing prices, the most recent price would be counted twice, and the entire field divided by 21. This weights the most recent entry by twice the weight of the previous 19.

Another form of weighting is called the sum-of-the-digits method. In this form of weighting, the oldest value is counted once, the second-oldest twice, and so on. The final and most recent would be counted based on the full number of periods; in a five-field data set, the most recent value is multiplied by 5 and the period just before by 4. The total is added and divided by 15:

$$1 + 2 + 3 + 4 + 5 = 15$$

This provides five times more weight, or influence, on the most recent value, and the weighting is reduced for each period. There are many ways to weight a moving average to provide more weight on the most recent information; one of the most efficient of these is exponential moving average (EMA). This calculation is based on calculating an exponent based on the size of the field (for example, a 20-period moving average involves calculating an exponent based on 20 periods). Each new entry is calculated to adjust the EMA up or down without having to recalculate the moving average each time.

MA is used in many technical formulas, as a means for smoothing out price or volume data and for identifying changes in the prevailing trend. Western technical analysis relies on MA as a core basis for understanding how those trends gather momentum or lose momentum as time passes.

**moving average convergence divergence (MACD)**

a popular momentum oscillator that tracks two separate moving averages to anticipate points when changes in price are likely to occur.

MACD was developed by Gerald Appel in the late 1970s. MACD lines change as they move above and below an identified “zero line.” Key moments occur when these lines approach each other (converge), cross over one another, and move away (diverge). The calculation of MACD begins with a subtraction of the longer-term moving average from the shorter-term. These are 26-day and 12-day calculations, although the averages can be adjusted.

These averages are calculated using exponential moving average, which is a simplified method for weighting an average. The field consists of each day’s closing price. In addition to the two EMA lines, a “signal line” serves as a base for comparison. This is a nine-day EMA, and the two additional moving averages are compared to this signal line. The signal line is the key, because when the net MACD (26-day minus 12-day moving average) is above that line, it is positive, and when below, it is negative.

On an MACD chart, two primary lines representing the two EMAs are at work. On some charts, a third factor, presented in the form of a histogram, tracks the net difference in the two EMAs; however, MACD analysis can be accomplished with only the two lines, as the convergence, divergence, and crossover are the key signals traders look for.

Convergence—the two EMA lines approaching one another or approaching the price from above or below—

anticipates crossover and the possibility of a change in trend direction. Divergence—the two lines moving away from one another or away from the price level itself—indicates changes in momentum. Crossover—when the two lines cross one another or when one of the lines crosses the price trend itself—may signal and precede a reversal in price.

All of these key changes in MACD confirm candlestick indicators or may lead the trend to be confirmed by candlestick formations after the MACD trend develops. No indicator, including MACD, may be used by itself to time entry or exit. MACD is especially complex to use for timing because at times it leads, but at other times, it follows the price trend. Using averages makes interpretation difficult, and MACD is based on the use of two separate weighted averages.

In general, whenever the price records a new high and MACD is lower than the price, it is a bearish signal. When the price forms a new low and MACD is above that level, it is considered bullish. However, the timing and time duration of these signals is not certain, and because MACD is based on backward-looking indicators (moving averages of past sessions) the strength of a bearish or bullish signal will rely on the speed and extent of movement within the averages.

For example, the three-month chart of Exxon Mobil (XOM) shows the two MACD lines below the price. The shorter 12-session EMA is shown with the black line and the longer 26-session EMA is found on the red line. The shorter EMA is the most responsive, and in this chart that line tracks the price trend very closely. The value of EMA is found in the manner in which the two EMAs interact.

**KEY POINT:**

The daunting name of moving average convergence/divergence (MACD) should not prevent an appreciation of the predictive value it provides. Convergence and divergence of averages in relation to price is an excellent visual device for predicting and confirming reversal trends.

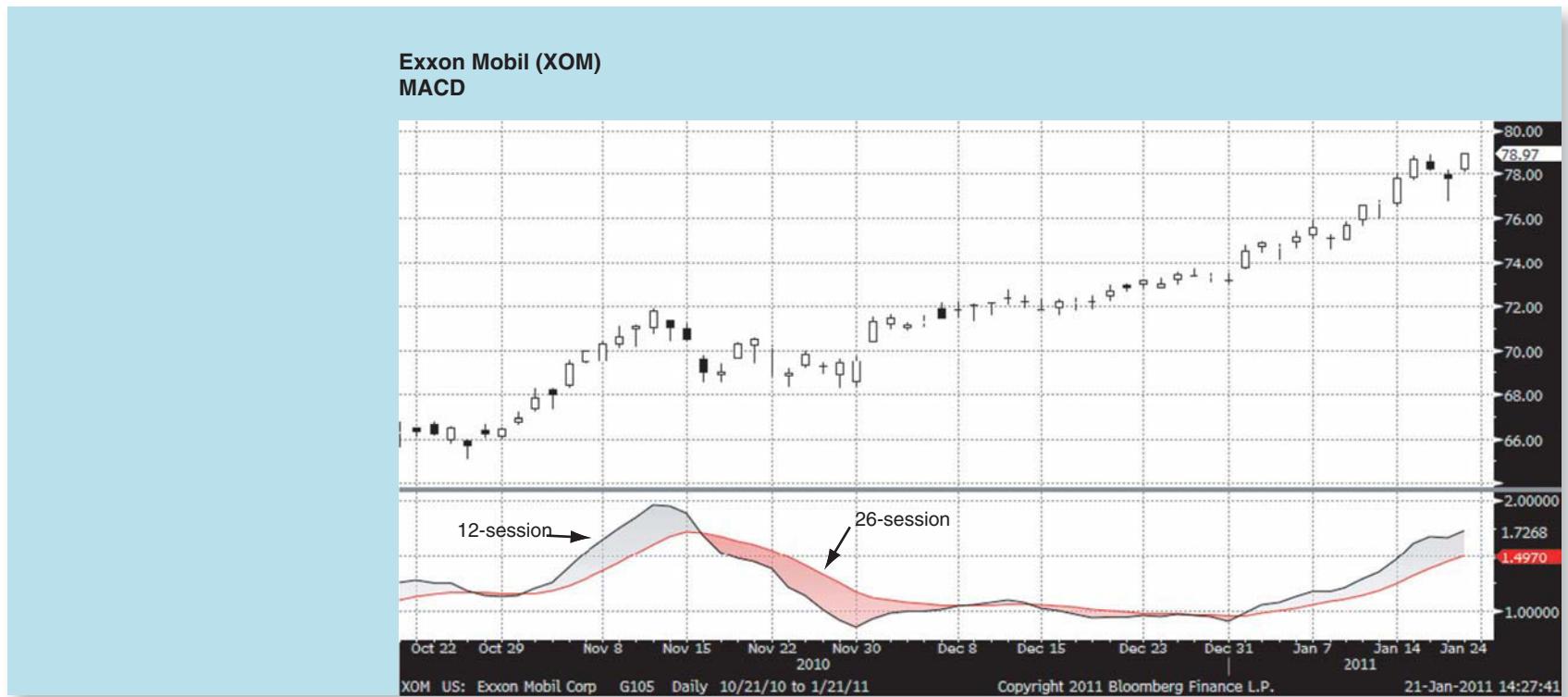
**DO IT YOURSELF**

The primary MACD line is a net of two separate EMAs:

12-day EMA – 26-day EMA = MACD line

The 26-session EMA begins declining in mid-November, when the price trend was sideways. Both averages fell to a low and remained quite close together even as the price began moving upward. This is an example of how MACD may lag rather than lead. MACD's bullish move did not occur until the first week in January, more than a month after the subtle and gradual uptrend began. The price gap that occurred after November 30 was a bullish signal that led to this slow uptrend. It was confirmed by a 12-session

MACD turn upward that occurred at the same time; however, interpretation of this is not clear. It may be seen as nothing more than an adjustment of the average *caused* by the price gap and not confirming it. The crossover on December 31 signaled the increase in bullish momentum. In this case, MACD led the trend even without clear confirmation from any candlestick formations. Throughout this period, the trading range remained very small, meaning there was little to rely on in candlestick indicators.



**KEY POINT:**

What swing traders call an NRD is the same as the candlestick term doji or near-doji. Its value as a signaling session is found in translation. In Japanese, “doji” means “mistake.”

**narrow-range day (NRD)** in swing trading and day trading, a likely reversal session. It is a near-doji or doji session, in which the range between open and close is very small, or when the close is the same price as the open.

Timing of entry and exit often is based on the appearance of an NRD. In charts where this occurs frequently, no clear signal is possible. But when an NRD follows a series of broader-range trading, it is a valuable leading or confirming signal. An NRD (doji) also serves as part of a several multisession candlestick indicator.

Confirmation of the NRD consists of not only candlestick formations, but several other changes observed by active traders. These include:

- a reversal session immediately before or after the NRD, or a session moving in the direction opposite the

trend. This applies when a trend is underway, defined as three or more consecutive sessions moving in the same direction.

- a volume spike, a day in which volume is significantly higher than average. The combination of a volume spike and an NRD is among the strongest of reversal indicators based solely on Western technical analysis.
- approach to resistance (in an uptrend) or support (in a downtrend) and an unsuccessful attempt at breakout, which anticipates a retreat in the opposite direction.
- confirmation through candlestick reversal indicators that include the NRD (doji or near-doji) as part of its formation.

**on-balance volume (OBV)** a cumulative indicator developed by market writer, speaker, and forecaster Joseph Granville. OBV was first introduced in Granville's 1964 book, *New Key to Stock Market Profits* (Prentice Hall). The concept is to measure both positive and negative volume on the theory that changes in volume predict price movement.

The running calculation assigns each day as either positive or negative. If a stock's price closes higher, the day's OBV is positive, and if it closes lower, OBV is negative. One flaw in OBV is that it makes no distinction between slight changes and significant changes. A day whose price increases by one-quarter point is given the same weight as one whose price increases by six points. In both cases, the OBV is given a positive mark. Each day's positive entry is added to the previous cumulative total, and negative entries are subtracted.

The basis of OBV is the belief that volume precedes price and that the current price projection can be used to measure changes in volume as positive (up days) or negative (down days). However, it is not the level of volume that matters but the behavior of the OBV line. OBV may precede and thus predict price changes, although it does not always do so. The uncertainty is augmented by price behavior near resistance and support, or on days in which volume spikes. These factors and the effect on trading behavior may distort OBV and provide a false indicator.

OBV is believed to turn bullish when the cumulative line moves high as prices move lower, especially as price forms a new low. A bearish divergence results when

prices move higher but OBV moves lower. This is especially compelling if price level reaches a new high.

OBV is a useful indicator of buying and selling pressure over time. However, it serves best as a confirming indicator or when it is independently confirmed by other formations, notably candlesticks. Considering the assignment of all volume as either positive or negative regardless of the degree of change in price, each session's change in OBV is neither as reliable as other Western signals, nor as strong a reversal indicator as many candlestick formations.

For example, the chart of Chevron (CVX) tracks OBV below the price over three months. The price trend was sideways for the first month and then began moving up. There were two moments in which OBV precedes the price move accurately. The first was during the first week of November, when price direction was far from clear but the OBV line moved sharply upward. This upward change began even as the price trend was downward, including a strong downside gap. However, this was followed immediately with a reversal, upside gap, and strong but brief uptrend. The second forecast showed up in the first week of January. OBV moved upward, and price followed a few sessions later.

Confirmation that the November OBV moved was found in two changes. First was the near-doji, and second was the very strong upside gap. In the second, January move, the sequence was reversed. First came a very strong bullish harami ending on January 7, preceding the OBV move two sessions later. In this case, OBV confirmed the candlestick reversal signal.

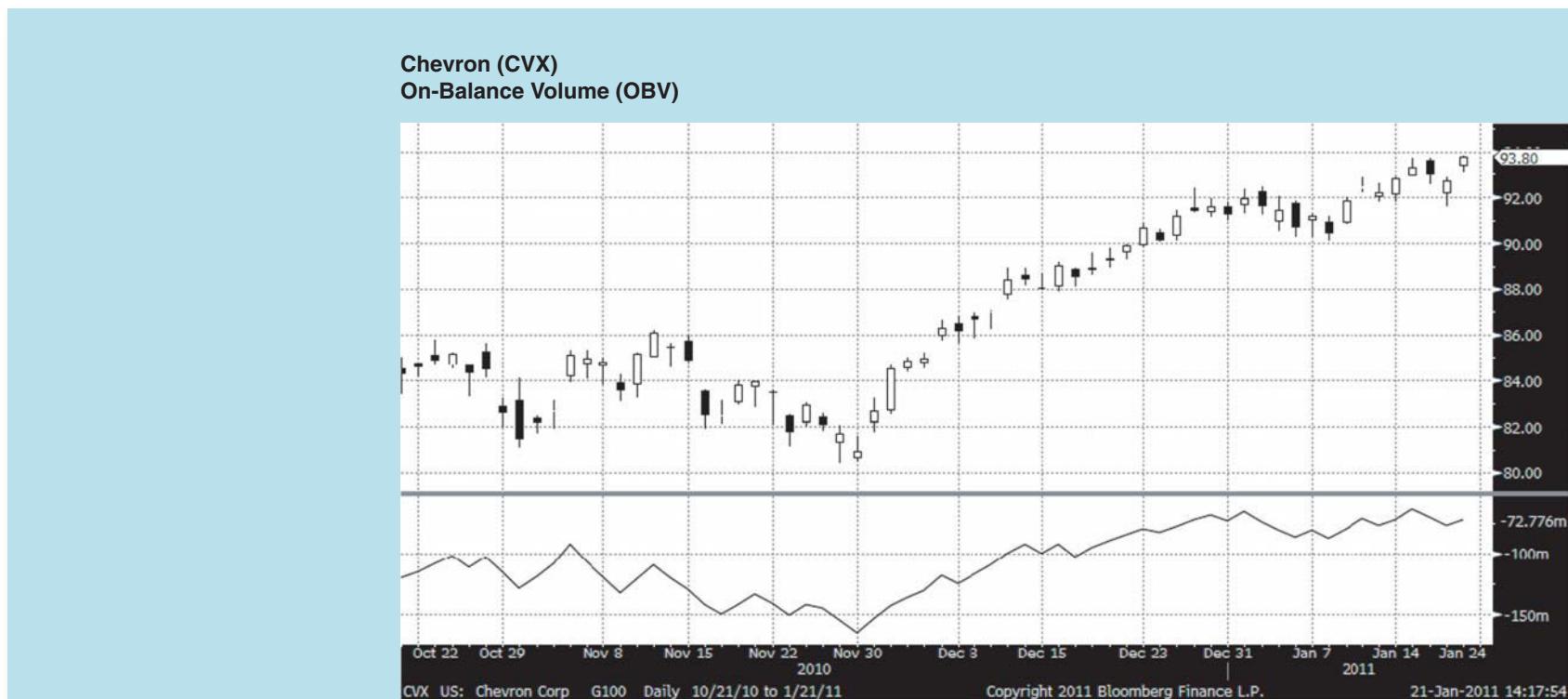
## DO IT YOURSELF

Calculation of each day's OBV:

1. Positive price change:  
prior OBV + current volume = new OBV
2. Negative price change:  
prior OBV - current volume - new OBN

## KEY POINT:

OBV has two drawbacks. First, it defines a session as either positive or negative even when the direction is very slight. Second, because it is a cumulative indicator, its current level varies based on the starting point.



**overbought/oversold (OB/OS)** the condition of the overall market, when prices have been driven too high through excessive buying (overbought) or too low as the result of selling (oversold). The circumstance may be an aspect of the advance/decline ratio, relative strength index (RSI), and other oscillators. Or it is the result of a calculation based on comparisons between advancing and declining issues. In treating this as an indicator, a 10-session moving average is most often used to calculate the net difference between advancing and declining stocks on a particular exchange.

The number of the OB/OS is a matter of interpretation. When the 10-day average is higher than +200 (very

overbought market), OB/OS is very bearish, and when the 10-day average is under -200 (oversold), the signal is very bullish. However, based on volume levels for the market, traders may decide to use this indicator to identify reversal points in the market rather than relying on a specific number of advancing and declines issued averaged in this manner.

OB/OS is expected to act as a leading indicator, so price movement and, specifically, reversals are expected to follow the point where they are identified as overbought or oversold. However, it is important to find confirmation in candlesticks and other indicators before making entry or exit decisions.

## DO IT YOURSELF

To calculate the overbought/oversold indicator:

$$10\text{MA} (\text{AI} - \text{DI}) = \text{OB/OS}$$

where: 10MA = moving average

AI = advancing issues

DI = declining issues

OB/OS – overbought/oversold indicator

## KEY POINT:

OB/OS provides confirmation of pending reversal, but identifying the point of extremes is a matter of opinion and interpretation.

**KEY POINT:**

Paper trading systems are offered by several online brokerage companies as well as by the Chicago Board Options Exchange (CBOE) ([www.cboe.com/tradtool/virtualtrade.aspx](http://www.cboe.com/tradtool/virtualtrade.aspx)) and other exchanges.

**paper trading**

also called “virtual trading,” a system for simulating trades without placing funds at risk. The purpose is to learn how trading works or to try out specific strategies. For example, a trader interested in testing the effectiveness of using candlestick reversal signals to time entry and exit may employ paper trading to determine actual risk levels and the usefulness of specific signals to better time trades.

Although paper trading is safe (no actual funds are placed at risk), a danger in employing this strategy to

test a theory is that it does not provide actual experience. As a trading “game,” it may have the unintended consequence of insulating traders from risk awareness and convincing them that risks are lower than they are, or even nonexistent. In addition, traders using “virtual money” do not act in the same manner as those with actual capital at risk. Paper trading is a valuable learning tool, but its usefulness is limited. Paper trading is useful for learning to recognize candlestick formations and to then time entry or exit in response.

**percentage swing system** a device used to confirm the timing of entry or exit. Developed by market expert Marty Zweig and first discussed in his 1985 book, *Winning on Wall Street*, the system is based on tracking price changes in both directions and making a move if and when a predetermined percentage of change has been reached. Zweig favored 4 percent moves to create buy and sell signals, but this is a matter of judgment for each trader. Even small changes in underlying assumptions may cause a model to work less effectively or even to fail altogether.

Price retracement may also be based on the observation of how prices move and then reverse, either

temporarily or to return to a prevailing trend. One well-known percentage swing system tracks retracement based on the Fibonacci sequence, in which trendlines are used to predict price movement and reversal.

A percentage swing system should not be considered as a sole means for timing of trades. However, it is an excellent confirmation tool for other reversal indicators, notably those found in strong candlestick patterns. The percentage swing system, along with other trend and momentum indicators, is effective in improving the timing of entry and exit based primarily on both candlestick and Western methods.

### KEY POINT:

Applying a universal percentage to every security is not always an accurate method for timing of trades. It may need to be adjusted based on levels of price volatility for the security versus typical volatility among other securities.

## DO IT YOURSELF

Formula for the price oscillator:  

$$[(12_{\text{ma}} - 26_{\text{ma}}) \div 26_{\text{ma}}] \times 100 = \text{PO}$$
  
 where:  $12_{\text{ma}}$  = 12-day EMA  
 $26_{\text{ma}}$  = 26-day EMA  
 PO = price oscillator

## KEY POINT:

Price oscillators are two separate calculations working together. They mark evolving trends as a powerful means for anticipating points of reversal.

### price oscillator

also called percentage price oscillator (PPO), a measurement of momentum based on the trend between two separate exponential moving averages (EMAs). This is used in conjunction with MACD to assign a percentage value to monitor convergence and divergence. It requires a calculation of the net difference in the 12-day and 26-day EMA, dividing by the longer average and then multiplying the result by 100 to arrive at the percentage value.

The price oscillator is useful in employing MACD to identify buy and sell signals. The indications are

similar to MACD, but expressed as percentages above or below the signal line (a 9-day EMA of the price oscillator).

The price oscillator is a valuable confirmation tool for what candlestick reversal indicators signal. Like MACD, this is a track of moving averages, so it is backward-looking. Any large moves in price may distort the price oscillator, meaning that before acting on a buy or sell signal, traders using the price oscillator need independent confirmation from candlestick patterns in agreement, or from Western technical signals.

**price spikes** a tendency for prices to move dramatically above or below the accepted range. As a statistical standard, spikes are distortions and should be removed from the analysis as long as they meet two specific criteria. These are the following:

- the spike must be one-time and nonrecurring.
- price levels must return to the prevailing trading range immediately.

**KEY POINT:**

Primary trends have three predictable phases: accumulation or distribution, public participation, and panic or excess. Understanding behavior during each trend helps improve timing and strengthens a contrarian approach.

**primary trend**

under the Dow Theory, the basis of technical analysis, the long-term trend of the market (trends moving upward are bull trends and those moving downward are bear trends).

Every primary trend has three parts: accumulation or distribution phase, public participation, and panic (or excess).

In a bull market, the primary trend begins with accumulation. The Dow Theory states that this earliest phase is when knowledgeable investors begin acquiring long positions. The timing of accumulation is associated with the last segment of a downtrend, when most traders are fearful and expect further downward movement. At the beginning, accumulation also marks a period of consolidation, and only toward the end do prices begin moving upward.

The second bull market phase is public participation. Traders recognize that prices are moving higher, so a big move into long positions occurs. Gradually, the previous negative opinion is replaced with optimism, which in turn accelerates the bull market. Public participation is likely to also be the longest period within the trend, as well as the one with the most significant degree of upward price movement.

The third and final bull market phase is called excess. In this phase, the most knowledgeable traders begin selling shares and moving out of long positions, recognizing that the bull market is beginning to lose momentum. However, most traders do not recognize this and continue to acquire larger long positions. At this point, a growing number of new traders also enter the market in the belief that the uptrend will continue. This buying activity is at its greatest at the peak of the bull market.

Primary bear markets also involve three parts. First is the distribution phase, in which knowledgeable traders and investors begin selling shares to close long positions or may open short positions. At this point, most traders continue to view the trend optimistically, not realizing that the previous bull market has ended.

The second phase is public participation, when the majority realizes that a bear market is underway. Selling activity grows as prices continue to fall. New short positions accelerate as traders believe prices will continue to move downward.

The third and final phase of a bear market is called the panic phase. Traders sell shares to avoid further losses and pessimism rules the market. The selling activity reaches its height at the same time that the bear trend bottoms out.

The timing of all phases in both bull and bear markets often is very difficult to spot. However, contrarians recognize the tendency to “buy high and sell low” instead of to “buy low and sell high.” They use many technical devices not only to improve the timing of trades, but also to recognize the type of market trend underway. These include a range of momentum oscillators, evaluation of evolving trading ranges for specific issues, and the types of candlestick patterns showing up in price movement. Sideways movement over an extended period hints at a switch point between primary bull and bear markets, and traders using candlesticks will look for breakout and reversal patterns to determine when the market is about to move once again. While candlestick indicators provide clues about short-term reversal or continuation, a recurring candlestick pattern may confirm or lead a new trend direction within the primary trend.

**pullback** a reversal in price, found at either the top or the bottom of a short-term trend. When prices have risen quickly, a pullback is expected, especially to fill gaps that developed during the price rise. When prices have fallen rapidly, the same tendency to reverse and fill gaps will be found.

Deciding when to use pullbacks to time entry or exit should rely on the use of candlestick indicators. Pullbacks are examples of price adjustments for which candlesticks are exceptionally useful. When confirmed

by tests of resistance and support, the candlestick indicators are excellent methods of confirmation. For example, if price rises and breaks through resistance, a candlestick reversal signal anticipates a pullback to fill the gap and retreat into the previous trading range. The same is true for breakouts below support. If the candlestick formation is bearish, then it is more likely that prices are going to continue falling; a bullish reversal makes reversal more likely.

**KEY POINT:**

No trend moves in a straight line. They slow down, retreat, consolidate, and then resume. The range of candlestick signals and confirming indicators help manage the chaotic nature of short-term price movement.

**reaction swing**

also called retracement, a tendency for price to move in the direction away from the primary trend, as a temporary adjustment that is followed by a resumption of price movement in the trend direction.

Securities do not trade in a straight line, but tend to be dominated by a direction for a period of time (the trend) and to experience reaction swings within that trend. Traders may take advantage of these short-term swings as part of a timing strategy.

Candlestick indicators are very effective at timing of trades based on reaction swings. Most traders understand that even when a long-term trend is underway, shorter-term reaction swings are found frequently

within that trend. A swing-based strategy relies on reversal signals that appear often within a primary trend and point to short-term entry and exit opportunities. When traders rely on candlestick indicators and separate confirmation, timing will be improved. However, the trader does not know whether a change of direction is a reaction swing or the beginning of a reversal to a new trend moving in the opposite direction. For this reason, continued monitoring of candlesticks and other technical patterns is the only method for ensuring that positions entered will be closed based on reliable signals. This applies both to newly established trends and to re-action swings.

**rectangle bottom** a formation in price in which a decline leads to upside reversal, but only after a short period of sideways movement. This formation has two aspects. First, it is a reversal but is not V-shaped like so many other reversals. Second, it often will be found as a test of support, which also confirms the reversal when a breakout attempt below support fails.

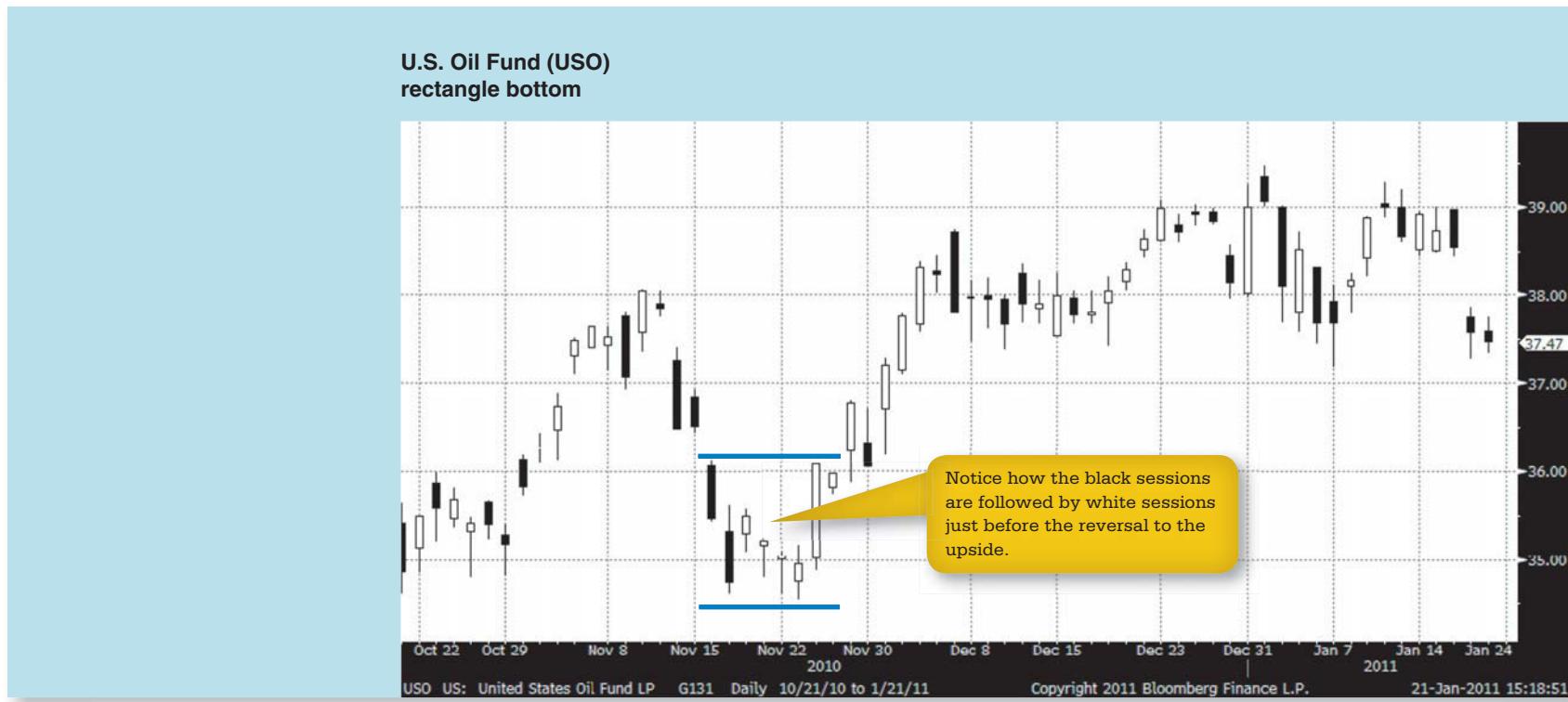
Confirmation through support holding up may be further confirmed through strong candlestick reversal signals. For example, U.S. Oil Fund (USO) followed the pattern precisely. The downtrend concluded with a clear

rectangle bottom that also tested support. The conclusion of the rectangle bottom was found in the closing white marubozu.

This rectangle bottom also conformed to the expectations for behavior of support and resistance. This began with the test of support within the rectangle bottom and then an upward movement that broke through the previously established resistance level. The chart overall presents an example of how Western indicators such as rectangle bottom at support are effectively confirmed with easily spotted candlestick signals.

### KEY POINT:

The rectangle is easily identified and often leads to tests of the trading range, confirming the next step, reversal.



**rectangle top** a price pattern in which an uptrend ends and then reverses, not in a V formation but after a brief period of sideways movement. This occurrence often is found in conjunction with a failed test of resistance, leading to a new downtrend.

The test of resistance is not an essential matter in order for the rectangle top to appear. However, when it does, that serves as confirmation of the reversal in the same manner that other tests of resistance do. For example, the three-month chart of Microsoft (MSFT) included a rectangle top that briefly broke through resistance established the previous June at \$26.50.

Rectangles are valuable charting tools when they not only conform to the requirements of Western technical price movements but also provide compelling candlestick confirmation. At the end of the rectangle top, a two-session bearish meeting lines signal preceded the reversal and marked the end of the rectangle top. That was followed by an easily spotted doji and then the downside price retreat. Much later, beginning on December 14, the temporary resistance level set by the rectangle top at \$27.50 became the new support level after a successful upside breakout.

### KEY POINT:

The brief sideways movement within the rectangle identifies resistance and foreshadows an offsetting downside reversal.

**Microsoft (MSFT)**  
rectangle top



**relative strength index (RSI)** a momentum oscillator that measures recent price movement to determine when conditions are overbought or oversold. The indicator was developed by J. Welles Wilder, a market expert, researcher, and author who introduced RSI in his book, *New Concepts in Technical Trading Systems* (Trend Research, 1978).

RSI measures not only the amount of movement and its meaning, but also the speed of price change. The indicator creates a measurement between zero and 100. When it moves above 70, conditions are defined as overbought; when it moves below 30, the security is oversold. When RSI reaches the extreme of zero, it reveals that price moved lower during all 14 periods. When it reaches 100, it means that price moved higher during all 14 periods.

The set period does not have to be left at 14 days. By lowering the number of days, sensitivity to change increases and overbought or oversold conditions will be reached more often. With an increase in the number of days, more smoothing occurs in the average and overbought or oversold conditions will occur less often.

The index values can also be adjusted from 30 and 70. For example, when expanded to a 20–80 range, the occurrences of oversold or overbought will occur less often. Some traders employ two separate RSI calculations. The first is the traditional 14-period RSI based on a 30–70 range. The second is a shorter-term averaging (two-period, for example) using the 20–80 range; the latter identifies short-term oversold and overbought conditions and helps find reaction swings in price within day-trading and swing-trading strategies.

In two-part systems such as this, effectiveness is greatly improved when traders seek confirmation between RSI levels and candlestick indicators. When oversold and overbought conditions appear, candlestick formations are likely to provide useful confirming signals.

RSI is useful in identifying not only overbought and oversold conditions, but also failure swings and centerline crossover (such as the key change in momentum found in indicators like MACD). RSI also identifies the primary trend's direction, which is not always apparent, especially in very volatile markets. In situations of sudden price change, the long-term meaning is not always clear. RSI helps provide perspective in such times (for example, when a large price gap occurs or when resistance or support levels are broken and a new trend begins).

RSI can be used to spot reversals as well as overbought or oversold conditions. A divergence between price and RSI provides a strong signal and one most likely to find candlestick-based confirmation. As RSI's originator pointed out, directional momentum does not confirm price movement by itself. A divergence is always possible. A bullish divergence is the combination of a lower low in the price at the same time as a higher low in RSI. A bearish divergence is the opposite: a higher high in the price along with a lower high in RSI.

Tracking divergences is not an exact science. Many interim divergences are likely to appear within a trend, moving opposite the primary price direction. This is where candlesticks are valuable in identifying whether a divergence is a true reversal or a temporarily movement

## KEY POINT:

RSI is a popular indicator because of its effectiveness in anticipating price changes before reversal occurs. Its outcome is simple: a range between zero and 100, with key indicators above 70 (overbought) or below 30 (oversold).

## DO IT YOURSELF

The formula for RSI is:  
 $100 - [100 \div (1 + \{U + D\})] = RSI$   
 where: U = average of days closing  
           higher (up) over a set period  
 D = average of days closing lower  
       (down) over a set period  
       (the set period used in most  
       RSI calculations is 14 days)

**KEY POINT:**

Even when prices are on the move, RSI makes a distinction between the trend and overbought oversold. A trend may progress without moving into the extremes, and RSI makes this a visual outcome.

opposite of the prevailing trend. A failure swing offers the same kind of information but also the same kind of danger. RSI analysts recognize that an RSI swing occurs independently of price swings. This occurs when the RSI line moves below 30 or above 70, comes back, and then hovers at or near the line before breaking in one direction or the other. This occurs most often immediately before a strong reversal. Candlestick signals confirm the potential reversal and may actually lead RSI. In that instance, the price reversal trend has greater strength than the RSI trend, because RSI lags due to the smoothing in the use of an average, whereas price reversal is raw, immediate information.

Two examples of RSI provide a look at how the indicator performs in different levels of volatility. First is the three-month chart of Home Depot (HD).

The first observation in this chart is that RSI never moves into either overbought or oversold ranges. Although the stock price was trending upward, traders who tracked RSI did not find any sell signals because RSI remained in the middle zone for the entire period. Even the strong upward movement during the first week of December did not set off any alarms about possible reversal. In this example, RSI provided a degree of

certainty for traders in long positions that no reversal was likely in the immediate future.

The second chart is for Best Buy (BBY). This situation is quite different. The stock was experiencing a sideways trend for its first six weeks. Then a strong downside gap occurred, dropping the price six points in a single session. At this point, RSI also fell and moved into the oversold range, but only slightly. It remained below 30 but did not continue to fall. RSI rose back into the middle zone in early January. Even though price continued to decline, dropping to \$28 by April, RSI stayed above 30 for the entire period (beyond this chart) except for some very brief dips under that level.

This second chart reveals that RSI is not an indicator of price direction within the immediate future. It identifies instances when the security is overbought or oversold, but the trend moves independently. BBY was one such case. Between December and April, price dropped 17 points while RSI moved very little. As a confirming indicator of overbought or oversold conditions, RSI is valuable; it points to those moments when traders will want to enter a trade. But RSI is not a trend indicator. Before acting on what RSI predicts, traders need confirmation from other Western technical signals or from candlesticks.





**resistance** the price level representing a limit on price moving any higher, due to the strength among sellers (as an offset to the strength among buyers). As price approaches resistance, selling pressure grows and buying pressure shrinks. At resistance, the supply of shares meets or exceeds demand and halts further price growth.

Once this changes, prices may break through resistance and establish a higher trading range. So resistance (like its opposite, support) defines the current trading range, but that may change in the future. When price breaks above resistance, one of two patterns follow. If the breakout holds, prices move higher and set a new trading range. But prices may also retreat back into the established range, declining below resistance as a consequence of lost buyer momentum.

When breakout succeeds, a new trading range will set a higher resistance price, as well as a new support level.

New support often is going to be found at the previous level of resistance.

As price levels approach resistance, many traditional Western indicators provide insight to price behavior, especially involving downward reversal and decline. These include double tops and head and shoulders, for example. The failure to break through resistance leads to reversal and downtrend.

These price tendencies are confirmed by candlestick patterns that occur when price tests resistance. Seek strong reversal signals and confirmation through Western technical signs. Strong price reversal may also include gapping price movement, especially as part of a recognized candlestick pattern; volume spikes; exceptionally long black candlesticks at the price peak and at or near resistance; and near-doji or doji sessions, especially those with very long upper shadows (a symptom of lost buyer momentum, which anticipates a downward turn).

### KEY POINT:

The level of resistance may be flat, rising, or falling. The shape it creates in relation to support is used to anticipate continuation or reversal, even in very volatile conditions.

**retracement** a short-term move in price in the direction opposite that of the prevailing trend. Chartists recognize that trends do not move indefinitely in a straight line, tending instead to experience retracements within

the longer-term trend. Candlestick formations are valuable in narrowing down a distinction between a retracement and a true reversal.

**reversal** a turn in price trend, when an uptrend halts and then moves into a downtrend, or when a downtrend stops and subsequent price movement creates an uptrend.

Reversal in Western technical analysis includes many well-known price patterns, such as head and shoulders or inverse head and shoulders, double tops, double

bottoms, and falling or rising wedges. Among candlesticks, reversal indicators take many forms, including hammer and hanging man, engulfing patterns, harami, belt holds, doji star, meeting and piercing lines, white soldiers and black crows, inside up and down, outside up and down, abandoned baby, squeeze alert, and concealing baby swallow.

**reversal formation** any indicator in price that predicts a reversal in direction. These are found in both Western and Eastern signals and are best interpreted when confirmed independently. A reversal formation may fail, so confirmation is required before acting. Confirmation of a reversal formation may include other reversal formations, candlesticks, or Western price patterns. They may also include volume spikes or volume-based indicators and measurements.

Most reversal formations work in conjunction with changes in momentum among the dominant side in the current trend. So one of the most important reversal formation confirming indicators is a momentum oscillator that changes the indicated strength and weakness of the trend.

**reversal session** a single trading session in which price movement is in a direction opposite that of the prevailing trend. This appears at random in some cases, or it may be part of a more complex candlestick pattern. For example, numerous two-session candlestick reversals begin with a directional session but then follow with a reversal session. Notably strong examples include

engulfing patterns, harami, meeting lines, and piercing lines.

Reversal sessions also are found in Western technical signals, notably exhaustion gaps, failed breakouts, double tops and bottoms, and narrow-range sessions (in candlesticks, called doji or near-doji sessions).

### KEY POINT:

An isolated reversal session may have no particular significance within the broader trend. Before a trader acts on such a signal, the larger trend and related candlestick formations should be studied carefully.

**KEY POINT:**

The rising wedge is usually very bearish because, even as price trends upward, the range narrows. This is a subtle but compelling leading indicator for a downturn at the end of the wedge period.

**rising wedge**

a bearish formation developing over several periods of trading. It begins with a wide range that narrows. As the range narrows, prices rise. It provides a reversal indication in most instances. The rising price levels combined with the narrowing range usually leads to a decline once the wedge is complete; however, this needs confirmation from other signals such as candlestick patterns or Western signals such as a failed test of resistance just prior to the reversal. The rising wedge may develop as a continuation pattern in a minority of cases. In continuation situations, the rising wedge will often appear as a short-term upward price trend moving counter to the prevailing downtrend.

To work as a reversal, there must first be an uptrend in effect. The chart for Visa (V) shows a good example of a rising wedge. The uptrend was clear, but the narrowing price was a symptom of falling momentum during the period. Confirmation of a coming reversal was found in the last two sessions of the uptrend, in which a bearish harami appeared. This was the action point, especially since the rising wedge had narrowed considerably by this point. The following session gapped down and then a very strong long black session with a long upper shadow (a symptom of lost buyer momentum) made a convincing case for the lower trading range.



**KEY POINT:**

Runaway gaps are difficult to interpret and require strong confirmation. When the gapping action includes a lot of doji or near-doji sessions, especially if volume also spikes, it signals almost certain reversal.

**runaway gaps**

a series of price movements with recurring gapping action. It is a signal of growing interest in the stock among buyers (during an upward runaway gap pattern) or a widespread sense that the security is overbought, leading to downside runaway gapping prices.

Runaway gaps may be a symptom of strong directional interest, but they may also show up during a period of excess (upside) or panic (downside). This means that the meaning of the price pattern needs to be confirmed independently before acting. This may consist of candlestick continuation or reversal patterns as well as Western technical indicators. When any of these are accompanied by volume spikes, the meaning of the runaway becomes clearer. Volume growth often is seen in conjunction with narrow-range days (near-doji or doji sessions) and is a strong sign of a coming reversal.

Johnson & Johnson (JNJ) experienced a very strong but short-lived drop in prices, including five distinct runaway gaps, all moving down. The pattern ended once price settled into a sideways-moving range for two months before beginning to move upward. However, the seemingly upward reversal seen at the end of the chart

turned out to be a disappointment. JNJ's price trend remained uncertain until late April (beyond this chart) before it moved strongly upward.

The opposite pattern was found on the chart of Walt Disney (DIS). This uptrend involved only three runaway gaps, but interpretation based on what happened afterward was difficult. Considering the month-long sideways movement preceding the runaway gap pattern, the change looked very much like an upward movement. Prices continued upward beyond the charted period, confirming that this example of a runaway gap was bullish (prior to the preceding sideways movement, the price trend had been bullish, making this a continuation indicator). However, the candlestick signals were contradictory. Immediately after the brief runaway gap to the upside, a bearish harami cross appeared. Considering that the runaway gap may be found during a period of bearish reversal after excess on the part of buyers, this looked very much like a reversal signal. However, as later price movement revealed, there was no downtrend. This is an example of a combined runaway gap and bearish reversal signal, which failed.





**setup session** a signal applying both to swing trading and to candlestick analysis. In swing trading (and day trading), the setup is the first hint that a turning point has arrived. This may consist of a volume spike, a narrow-range day (NRD, or in candlesticks, a near-doji or doji), or a reversal day after a short-term trend. The setup is expected to be followed by a confirming signal or execution.

Candlestick setup refers to a specific session, the first one in a multistick signal or indicator. It is followed by a signal session. The combined signal is found in both reversal and continuation candlestick formations, and

the setup often forms the final entry in an existing trend before it reverses. The second signal session (or sessions) create the pattern first entered by the setup.

The swing trading and candlestick indicators are closely related and should be employed as part of a comprehensive strategy based on signal recognition and the search for confirmation. Setup in this regard consists of testing resistance or support, unusual gapping action, volume spikes, exceptionally strong candlestick signals (doji or long sessions, for example), and confirmation through technical patterns and index changes.

### KEY POINT:

Setup has more than one definition. In swing trading, a setup is the first part of reversal. In candlestick indicators, it is the first session of a multisession indicator that may predict reversal or continuation.

**short-term gapping behavior** commonly occurring price changes characterized by repetitive gaps between sessions for a limited period of time. Unlike running gaps or breakouts, short-term gapping price patterns are likely to occur within the current trend, but they offer no specific signal of a change. This is most likely a random event.

To distinguish between running gaps and short-term random gapping price movement, the pattern has

to be analyzed in the context of existing price direction, growing or shrinking momentum, and direction or change that other signals predict. If the price is acting within an established trend and no confirming indicators are found, the pattern is likely to be short-term gapping behavior. However, if other signals are found, such as growing momentum in the direction of the gapping action, it may be the beginning of a runaway gap trend.

**signal session** the indicator that completes a setup. In swing trading, the signal confirms the initial setup (volume spike, NRD or reversal day, for example). In candlestick analysis, the signal session (or sessions) follow the first session (the setup) and complete the pattern.

The signal session is the completion of a candlestick indicator in both reversal and continuation roles. The indicator cannot exist without both sides except in

the single-session candlestick. All indicators, even very strong candlestick patterns, need independent confirmation. Using both the swing trading and candlestick definitions of a signal session, traders may use both disciplines to identify and then confirm entry and exit points, especially at moments when the signs point to reversal.

### KEY POINT:

Signal has more than one meaning. To swing traders, it is the reversal follow-up confirming a setup day. In candlestick terminology, it is the completion of a multisession indicator and predicts either reversal or continuation.

## DO IT YOURSELF

To calculate simple moving average (SMA), add together the values in a field and then divide by the number of values:

$$(V_1 + V_2 + \dots + V_n) \div N = SMA$$

where: V = value

N or <sub>n</sub> = total number of values in the field

## DEFINITION:

### time series

In a moving average, reference to a fixed number of periods to be averaged, which advances with each new value; the new value is added and the oldest is dropped off, so the time series involves calculation for a fixed number of values.

**simple moving average (SMA)** in statistics, a calculation that smoothes a series of changing values or trends or that identifies the mean of a field of values. In trading applications, the SMA is a starting point for the more complex weighted moving average, including the exponential moving average (EMA), which is used in popular price tracking indicators such as MACD.

SMA, also termed a rolling or running average or the mean of the values in a field, is rarely a fixed calculation. In trading, a set number of fields are used to calculate averages of price, for example. A particular calculation

may involve 14 sessions or as many as 200. This **time series** requires recalculation with each subsequent entry. The oldest field is dropped off and the newest is added to extend the moving average forward.

A cumulative moving average is an exception. It begins with a set number of values and adds more values, so the field expands with each new value. For example, on-balance volume (OBV) adds new data as volume sessions develop, and a previous numerical index is adjusted based on new information, without dropping off any previous values.

**spike** a nonrecurring entry within a trend that is far above or below the norm. To ensure accuracy of a moving average, a spike should be excluded from the calculation.

In order to ensure the accuracy of any moving average, value spikes will distort the calculation. By definition, a spike occurs when one value is unusually higher

or lower than the typical value. However, the subsequent entries must return to the established range of values in order for the exceptionally low or high value to meet this definition. For example, in tracking a security's trend based on closing prices, a single session far above or below the established trading range is excluded as long as it is isolated and nonrecurring.

**KEY POINT:**

Stochastics provides a relative value to current price. It expresses a trend in relationship to a 14-period range of price extremes. It does not track price or volume, but the momentum of price movement.

**DO IT YOURSELF**

The stochastic oscillator consists of two separate lines termed %K, which is a 14-period value, and %D, a 3-session moving average of %K:

$$100 \frac{[(C - L_{14}) + (H_{14} - L_{14})]}{[(H_{14} - L_{14})]} = \%K$$

$$\%K_s \div 3 = \%D$$

where: C = most recent closing price

$L_{14}$  = lowest price among the previous 14 sessions

$H_{14}$  = highest price among the previous 14 sessions

%K = 14-period stochastic value line

$\%K_s$  = %K for the three most recent sessions

%D = three-session moving average of %K

**stochastic oscillator**

a momentum indicator that computes a relationship between a security's current price and its recent price range. This indicator was introduced in the 1950s by George C. Lane, who has been nicknamed the "Father of Stochastics."

The word "stochastic" is derived from a concept in probability theory. A stochastic process is a family of random variables that may include price and time, as well as a potentially random sequence of price movement. The oscillator developed by Lane was based on a comparison between the most recent closing price and a 14-period analysis of the lowest close and the highest close. The outcome of the calculation places the most recent close in proximity to the 14-period extremes. Lane described the oscillator as one that does not track price or volume, but that instead calculates the momentum of price movement. As a result of the trend found in the stochastic oscillator, traders can discover bullish or bearish reversals. Because the indicator is found between zero and 100, it is also valuable for identifying overbought or oversold conditions.

The calculation is designed to track 14 prior periods, usually representing days or other increments of trading

sessions. This can be increased or decreased to adjust what it reveals, or to alter the responsiveness of the calculation to price movement. When the line moves above 80, it is a signal that price is overbought and is due for a downward reversal. When below 20, it signals a bull reversal and oversold condition. Like other range-bound oscillators, the periods employed and the assumed overbought/oversold levels can be adjusted.

The chart of Boeing (BA) provides the oscillator below price. The black line represents %K and the orange line is %D. The frequent crossovers between the two lines are the result of averaging and are not significant on their own. However, when both lines move above 80 or below 20, a signal results. On about November 15 and again on December 15, stochastics provided a buy signal as both lines dipped below the 20 threshold. From November 15 through to the end of the period shown, the trend was clearly bullish. However, from December 23 onward, the stochastic level moved briefly above 80 several times, indicating overbought conditions. This tendency continued beyond the period shown; however, the price trend continued a gradual upward movement.



**KEY POINT:**

Support may be flat, rising, or falling. It is one of two important test lines (the other is resistance) that displays changes in momentum.

**support** the lower price that securities will trade based on the current trading range; the price where buying interest meets or exceeds seller momentum. As price approaches the support price level, buying pressure grows, preventing sellers from taking the price lower.

Price levels may eventually break below support, which leads to one of two outcomes. First, a lower trading range is set. Second, prices may turn and retreat into the previously set trading range and then continue upward. The failed seller momentum is likely to be followed by a price rally. When price does break below support, that price may become the resistance level in a new trading range. The flip between support and resistance is one pattern that occurs frequently when trading ranges move.

At the point that price approaches and tests support, Western indicators provide strong clues about the potential for declining momentum and a following uptrend. These include inverse head and shoulders or double bottoms. When these patterns are found, price is likely to turn and move upward, away from support.

The movement of price, notably after a failed breakout below support, is confirmed effectively with candlestick reversal patterns. Seek those patterns with reversal gaps, long white candlesticks, or doji and near-doji sessions with exceptionally long lower shadows (a sign of failed seller momentum). Also look for gapping price patterns and volume spikes as signals of bullish reversal.

**swing trading** a short-term trading method, also termed “active trading,” based on opening positions for periods usually not exceeding three to five sessions. The theory in swing trading is based on the observation that a majority of traders act and react emotionally to market news, causing prices to move in an exaggerated fashion and then reverse to compensate for the initial move. Swing traders seek short-term trends in the three- to five-session timeframe, and then enter positions to create short-term profits.

The short-term trend has to be established in order for reversal to occur. This consists of three or more sessions moving strongly in the same direction. An uptrend is made up of consecutive higher high prices and higher lows. A downtrend requires consecutive lower lows offset by lower highs.

Swing trading entry and exit is based on reversal signals of many types. Among these are the narrow-range day (NRD), known also as the near-doji or doji session. Another is the basic reversal session, when the direction moves opposite that of the short-term trend. Finally, a

volume spike is a compelling signal of potential reversal. When any two of the three popular signals occur in the same session, reversal is very likely.

These reversal signals are powerful timing mechanisms. However, they are made even stronger when confirmed by either Western or candlestick formations as well. These confirming indicators include price gaps, tests of resistance or support, doji or near-doji (NRD) sessions with exceptionally long shadows (lower shadows at the end of downtrends or upper shadows at the top of uptrends are signs of lost momentum), and well-known strong candlestick reversal formations.

A combination of Western technical signals with candlestick reversal indicators is a powerful tool for timing entry and exit, notably within a swing trading strategy. This is a natural approach, not only because swings occur as part of a larger trend, but also because short-term reversal is easily spotted and, given the appropriate degree of confirmation, is a reliable method to improve timing of swing trades.

### KEY POINT:

Swing traders are not concerned with primary or even secondary trends; they look for retracements based on overreaction to immediate information. This translates to entering and exiting trades on very short timeframes, usually three to five days.

## DEFINITION: **efficient market theory**

A belief that the prices of all securities reflect all publicly known information at any given time, meaning that markets reflect fair pricing efficiently.

## DEFINITION: **random walk hypothesis**

A belief that all short-term price movement is completely random and will not be affected by outside influences.

## KEY POINT:

Both efficient market and random walk concepts are interesting. But real-life market activity defies these ideas. Anyone who has seen how price moves understands that the market is neither efficient nor random.

**technical analysis** a range of analysis designed to anticipate price movement, speed, and direction based on a study of charts, momentum, volume, and price patterns.

In comparison, fundamental analysis is based strictly on the study of financial reports and related information in the belief that capitalization, working capital control, and profitability determine stock prices. The fundamentals are backward looking in the sense that they rely on published summaries of recent operating results. Technical analysis is a study of the current price and recent trends, including moving averages to plot momentum, combining price and volume analysis, and specific price movements and patterns, in order to estimate a likely next step in price.

A foundation of technical analysis is the concept of resistance and support, the top and bottom of the current trading range. If price movement approaches either of these borders but does not break through, the price direction is likely to reverse and move in the opposite direction. This occurs because a failure to move price beyond the current trading range is a symptom of lost momentum among buyers (failed resistance breakout) or sellers (failed support breakout), after which the other side of the supply-and-demand interaction takes control.

Opponents of technical analysis (who may also be dubious about the fundamental approach) may hold one of two academically based points of view. The **efficient market theory** is a belief that the current prices of all securities reflects all known information about the

company, and that price is always efficient and correct as a result. Closely related is the **random walk hypothesis**, a belief that all short-term price movement is random and will not be affected by news, information, earnings, and other market developments.

Both technical and fundamental analysts are likely to reject both of these theories based on observations about news and reaction in price. It is true that price reaction often is irrational, but forces like momentum and moving average trends cannot be discounted completely. Even a pessimistic market observer will acknowledge that technical principles do play a role in affecting price movement.

Technical analysis is divided into two primary schools of thought. Western technical analysis is based on chart analysis as well as price and volume trend analysis, relying on momentum oscillators and moving averages to identify specific price behavior. Remember that the trading range and interaction between price and range (resistance and support) defines many technical patterns. These include head and shoulder, double top or bottom, trendlines, and a variety of triangles and wedges.

In addition to tracking price, Western technical analysis relies on moving average analysis and momentum oscillators studying price as well as volume to identify when securities are overbought or oversold, indicators that act as initial reversal warnings. Such indicators include the relative strength index (RSI), moving average convergence/divergence (MACD), Chaikin Money Flow (CMF), accumulation/distribution (AD), and on-balance volume (OBV). The modeling resulting from these

tools may be expanded to an advanced level of study of price behavior, using indicators like Bollinger bands or the stochastic oscillator. Although technical analysis is based to an extent on the principles of trends within the Dow Theory, the practical application of its tools are usually very short term, and designed to improve the timing of entry and exit into speculative trades, with little intent to employ a buy-and-hold strategy more closely associated with fundamental analysis.

The second school is Eastern, and it involves primarily the study of candlesticks. Among the many candlesticks are a range of formations of varying strength that may forecast continuation or reversal. The most effective use of candlesticks is to seek confirmation from other indicators. When Eastern and Western signals are used together to cross-confirm price movement anticipated in the signals, the charting technique is vastly improved.

Some critics believe that technical analysis is simply a method of trying to predict the future in a random world; however, analysis of momentum and moving averages belies this assumption. The purpose of all forms

of chart analysis is to improve the timing of entry and exit based on developing trends in price and momentum and to be able to spot radical change (such as strong gapping price action moving through resistance or support, for example) or, equally important, failed attempts at moving price (often seen at resistance and support when the breakout fails, and prices retreat along with reversal confirmation from candlestick indicators).

Technical analysis covers a broad range of techniques and indicators, and candlestick charting has become a standard for analysis. Even chartists focusing on Western price patterns and volume trends tend to rely on candlestick charts as the best visual summaries of price performance. A distinction should be made between the charting of price and the use of candlestick indicators. The chart itself is useful in both Western and Eastern approaches. The specific continuation and reversal candlestick indicators are valuable confirmation tools or leading signals, and they are most effective within a program of analysis using both Western and Eastern techniques.

**KEY POINT:**

Trading range, the area between resistance and support, defines the entire study of technical analysis including volatility and momentum. When trading range analysis is combined with candlesticks, the result is a powerful set of predictive and confirming tools.

**trading range** the price area in which a security currently trades, marked by resistance at the top and support at the bottom. Resistance represents the price at which sellers are able to prevent the price from rising any higher; support is the level at which demand has enough strength to prevent further decline.

As long as resistance and support maintain this balance, the trading range does not change. However, price

level is not always a flat line. A trading range may maintain the same breadth between the levels of resistance and support, even while price levels trend higher or lower. Resistance and support may also move toward or away from each other to create patterns known as triangles or wedges. In these instances, the trading range changes as the pattern develops and may foreshadow either continuation or reversal in the near future.

**trend** a tendency for price to move in one direction for a period of time, based on momentum and interaction between buyers and sellers. Trends rarely move in a straight line and are characterized by short-term retracements. Unlike a reversal, which is the end of one trend and the beginning of another moving in the opposite direction, a retracement is a temporary adjustment to the trend and normally does not last for more than a few trading sessions.

Trends may move upward, downward, or sideways. An uptrend, also known as a bull trend, is characterized by a combination of progressively higher high prices and higher low prices. Swing traders recognize short-term trends by this definition. A downtrend, also called a bear trend, is defined as consecutive sessions with lower low prices offset by lower highs.

Within an uptrend or downtrend, it is possible to also experience a pattern of short retracements within the broader trend. Candlestick formations are valuable in identifying the differences between these retracements and actual trend ends and reversals.

In addition to uptrends and downtrends, a sideways trend occurs whenever prices do not move beyond a defined trading range. The range often is quite small since this is a period of indecision, when neither buyers nor

sellers have momentum adequate to move price beyond the current narrow range. In this sense, a sideways trend may be called a nontrend because prices remain within a fixed and narrow range.

Any of the three trend types may last for as short a period as three sessions or as long as several months. The time a trend continues further distinguishes it as long term (one year or more), intermediate (one to three months), or short term. A short-term trend may represent a retracement of long-term or intermediate trends. However, swing traders and day traders rely on short-term trends to time their entry and exit, considering movements as short as three days to be trends for the purpose of trading.

Chartists and other technicians rely on trends to track momentum and follow price and volume as a means of anticipating when the trend will weaken. Augmenting this analysis is the study of moving averages, notably two separate moving averages, to seek trend evolution characterized by convergence or divergence of the averages, or the use of moving average lines crossing over each other or moving back and forth above and below the price as a means for quantifying the trend and anticipating reversal.

### KEY POINT:

All price movement is about trends and their momentum. Even in the most chaotic of price movements, trends emerge and provide a sense of order . . . for the moment.

**KEY POINT:**

Trendlines are simple but powerful. A single straight line helps find likely reversal points in the current trend.

**trendline** a method for tracking a current trend and identifying the likely end point. It involves drawing a straight line beneath the uptrend or above the downtrend. The line begins at the start of the trend and concludes when price levels meet or pass into the path of the line.

The chart for Kellogg (K) was characterized by a specific pattern: sharp but brief trends ending with sideways movement and then a new trend. The first of these sharp movements was a downtrend lasting just under two weeks. This ended with a strong bullish reversal signal, a three-session morning star (black session,

downside gap, small white session, and a larger white session). Although this indicates a bullish reversal, prices moved sideways for the following month.

The second trendline was to the upside and lasted approximately two weeks. The sideways trend preceding this sharp price rise ended when the long black session was followed by an even larger long white. The uptrend ended with another sideways trend just like the first one.

The trendlines on this chart are clear in the sense that they mark the strength of the downtrend and uptrend. Even though they were very brief, the momentum of each was robust.



**KEY POINT:**

The narrowing trading range of the ascending triangle becomes powerful continuation, leading to a bullish breakout.

**triangle (ascending)** a bullish continuation chart pattern in which prices continue rising, with support climbing higher against a level resistance price, as a sign of accumulation. As a result, the trading range narrows as the triangle closes.

As the support level climbs, price eventually breaks out above resistance and a new trading range is set. The prior resistance level often forms a new support as the

higher trading range develops. For example, the chart of Walt Disney (DIS) included an ascending triangle that extended for seven weeks. The prior trend had been bullish, and the triangle represented a pause in the trend that then resumed. It further appeared that once resistance was broken, that price formed new support. Analysis of DIS for the three months after this period confirmed this.



**KEY POINT:**

The fixed support level combined with a narrowing trading range is a powerful predictor of a downside breakout.

**triangle (descending)** a bearish pattern seen during an existing downtrend and visually reflecting a period of distribution. Although the descending triangle may provide reversal after an uptrend, it is most often a continuation formation. In both cases, looking for confirmation in the form of bearish candlesticks is prudent. The support level remains fixed while resistance moves downward, forming a narrowing range. At the point where the triangle is at its thinnest, prices continue the previous downward movement.

For example, Sears Holdings (SHLD) displayed a descending triangle that continued a short-term downtrend. After completion of the triangle, prices continued downward as expected. Confirmation that the downtrend was going to continue was convincing and involved three separate two-session candlestick signals.

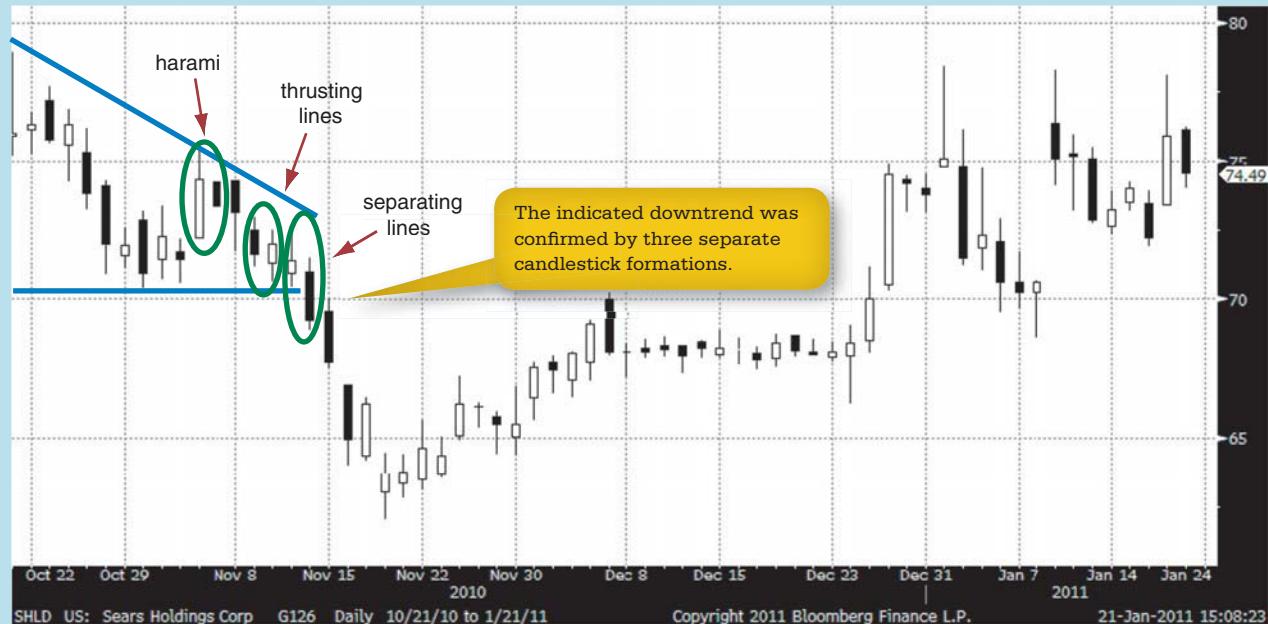
1. The first confirmation signal was found five and six sessions prior to the end of the triangle, where the

price gapped upward but then formed a bearish harami. This confirmed the triangle and also foreshadowed the continuing downward trend.

2. A second bearish signal appeared next, a thrusting lines signal. This confirmed both the descending triangle and the bearish harami.
3. Third, the last session in the triangle and the first downward session that followed formed a bearish separating lines signal, adding to the strong downward confirmation.

These three candlestick signals were all bearish and anticipated the strong downward movement that quickly followed. Although the trends themselves were quite short term, the patterns displaying before, during, and after the descending triangle demonstrated how price patterns and confirmation work together effectively.

### Sears Holdings (SHLD) triangle (descending)



**KEY POINT:**

The symmetrical triangle is unusual because both resistance and support move closer together; during its development, price is prevented from moving higher or lower. Buyers and sellers are in a stalemate until the range narrows completely.

**triangle (symmetrical)** also called a coil, a continuation pattern that is found in either an uptrend or a downtrend. It may also narrow the range of a sideways price pattern. In this type of triangle, resistance trends downward while support trends upward so that the trading range narrows, often rapidly, a sign of consolidation in the price movement. The two offsetting trend-lines are trading range barriers found at the same time, which is unusual but revealing. Price is prevented from heading higher *or* lower. Most technicians observe that once the stalemate has been broken, it leads to an exceptionally strong trend; however, the direction is not foreshadowed by the pattern and must be the result of independent confirming data.

When the price breaks below the narrowing range, it often precedes a downtrend, and when it breaks higher, it is viewed as a signal of a coming uptrend. However, remembering that at the point a symmetrical triangle ends the range is very narrow, any move after the formation needs to be confirmed by volume spikes, price gaps, or candlestick indicators.

Hewlett-Packard (HPQ) went through a period of volatility after a failed attempt at an uptrend, an offset,

and then the expected consolidation. The symmetrical triangle lasted only three weeks and then broke to the downside. However, prices then moved sideways again before starting an exceptionally strong uptrend. The problem in this development is that two bearish confirmation signals appeared immediately. This confirmed the likelihood of a new downtrend based on price breaking below. The first of these bearish signals was a clear and distinct black crows indicator. This concluded with a downside gap filled (consisting of the last two black crows session and the session that followed, filling the previous gap).

Even with the strong bearish predictions found in the price pattern and confirmed with two of the strongest bearish candlestick signals, this prediction failed. It points out a problem with the symmetrical triangle. Because both resistance and support are moving to a narrower range, it creates a great deal of uncertainty and, at times, even strong signals are not reliable. The final outcome of this was that after the last sideways movement of less than three weeks, an exceptionally strong uptrend completed the charted period, but lacked any obvious bullish signals.

**Hewlett-Packard (HPQ)  
triangle (symmetrical)**

**KEY POINT:**

True range is a form of two-session price blending intended to clarify the significance of candlestick signals. This is not the same as average true range (ATR), a form of moving average developed to smooth out volatility and to measure movement but not price direction.

**KEY POINT:**

Finding true range may help clarify the current price situation; however, it can also obscure it or create the desired but inaccurate effect.

**true range**

a calculation of the distance between the opening price of the first session and the closing price of the one following. It may also be calculated based on the extension of the opening-side shadow of the first session and the closing-side shadow of the second. Applying this definition, the true range combination may shrink or extend the trading range, and may also create signals not found with the sessions separately.

The calculation is often thought to be the same as average true range (ATR), but it is quite different, representing the two-session blending of prices to either absorb or accent the true trading ranges. It often occurs that this volatility between two sessions actually is far less volatile when the two are combined, and this aids in the analysis of the current price trend.

The chart of Intel (INTC) included an example of an upward-moving true range. Two sessions were involved. First was a black session and second was a white session opening well above the previous close. However, the gap between the two sessions was invisible. By blending the two sessions into a true range, the distance between session one's opening price and session two's closing price was quite small.

An example of a downward-moving true range is seen in the chart of Google (GOOG). Two consecutive black sessions include a wide gap between, extending from the close of the first to the opening price of the second. When

viewed apart, the downside gap implies that the down-trend will continue. However, when combined, the new true range including both sessions creates a strong bullish signal. The existing black session followed by a very small white session is a bullish harami; the true range session makes this bullish harami even stronger. Furthermore, extending the harami to one additional session forms a bullish three-day inside up signal. Finally, the three white sessions beginning at the same point form a modified white soldiers. Note the strength of the uptrend: Upside gaps follow in several of the sessions, including upside gapping black days. This downside true range example collectively serves as a nicely confirmed reversal signal.

All forms of blending, including true range, are troubling in the sense that they can easily distort the signals to create a desired outcome. The intention of the true range is to restate volatility so that traders can better read what is taking place over a limited timeframe. However, it can easily mislead. The Google chart is a good example. By making two black sessions into a single long black indicator, it would be easy to conclude that the signal was strongly bearish. This would be confused by the double bullish confirmation that followed. The use of true range must be undertaken with caution, and candlestick analysis and confirmation of Western signals provide a more reliable method for managing short-term price volatility.





**uptrend** a trend in which price movement is higher, which also includes degrees of momentum and duration. An uptrend may represent the primary trend underway or an interim move away from the primary trend. Such short-term retracement is common and expected; however, this reversal movement may easily mislead traders. Recognizing the difference between a primary trend's reversal and a retracement is difficult. The meaning of an uptrend is best understood through confirmation, especially when a long-term indication based on Western technical analysis is confirmed with candlestick formations.

Swing trading and day trading strategies are based on short-term movement, so long-term uptrends are not as important as a movement of three days or more. The definition of an uptrend in a swing strategy is three or more days with consecutively higher highs and higher lows. Swing traders seek this strict definition as a means of identifying reversal. Once a reversal day appears, the trend is probably over in the swing trading view. Confirmation is sought through narrow-range days (doji or near-doji) or through volume spikes. However, in addition to the swing reversal signals, candlestick patterns also confirm the swing trading short-term reversal and provide valuable additional confirmation.

The Dow Theory, serving as a basis for technical analysis, recognizes three distinct types of movements.

A primary or major trend extends several months or even years; a second reaction or swing period may last several months and is a retracement against the primary trend, and many uptrends fit this definition. Finally, a short swing or minor movement may last up to a month.

The Dow Theory also acknowledges that uptrends occur over three specific phases. First is accumulation, then public participation, and finally distribution. Accumulation is a period of active trading by knowledgeable traders, which in an uptrend means buying activity. Public participation occurs when the majority of traders recognize that the uptrend is underway. This adds to buying pressure, which tends to move prices higher and, as a result, expand public participation. However, by this time, the knowledgeable trader is beginning to look for signs that the uptrend may be ending. This is the distribution phase.

An uptrend follows these tendencies over the long term, meaning that analytical and professional traders lead the trend, both at its initial phase and at its conclusion. Recognizing a coming reversal relies not only on the observable price momentum, but also on confirmation through Western indicators and patterns, and through candlestick signals.

### KEY POINT:

An uptrend may last as few as three sessions (swing trading) or many months or even years (primary trend). It may also be a short-term retracement within a prevailing downtrend.

**KEY POINT:**

The purpose to weighting a moving average is to provide more importance to the most recent information, and less to possibly outdated, older information.

**weighted moving average** a form of smoothing, most often represented by exponential moving average (EMA), and used in many moving average indicators such as moving average convergence/divergence (MACD).

Any form of calculation that adds greater weight to the most recent values in a field is a weighted average, and as long as the number of periods remains fixed (older fields are dropped off as newer ones are added), it is a weighted moving average. These may take many forms beyond EMA, including simply adding the latest

value twice. Thus, in a field of 14 periods, the most recent would be counted twice and the sum divided by 15. This doubles the weight of the latest value.

The need for weighting arises from problems with simple moving averages. Price action and the trend, especially long-term, may not be representative of current price momentum or movement. For example, a 200-day moving average that is equally weighted is overly smoothed in favor of outdated price, but weighting the more recent entries to the field is viewed as more accurate.

**Western technical analysis** forms of analysis based on price and volume, or the study of trends, duration, and momentum. No single trading session is by itself used in Western technical analysis, but it serves as an entry into a larger charting price and volume trend. The evolving price trend is used to predict continuation or reversal, based on the recognition of the current trading range and its borders, resistance at the top and support at the bottom. Many Western reversal signals are based on failed attempts by buyers or sellers to break through these barriers. The trading range is the framework and reference point for momentum as well as for a majority of technical signals.

These are called Western signals because they have been used for many decades in North America and Europe as primary measurements of price movement and momentum. In contrast, Eastern technical

analysis is the term for candlestick analysis, which is based on the shapes of sessions—the opening and closing prices—as well as trading range extensions (shadows) above and below those opening and closing levels. Eastern analysis is less concerned with trading ranges or with resistance and support, and more focused on single session, double session, or multiple session indicators, defined as reversal or continuation signals.

Western technical analysis is most effective when it relies on additional Western signals or candlestick formations to confirm what an initial indicator predicts. Because any signal can fail or provide false predictions, confirmation is essential in both Western and Eastern analysis. The most effective method for improving timing of entry and exit is to combine both disciplines and use them to confirm each other.

# Bloomberg Functionality Cheat Sheet

Throughout this book, several Bloomberg Professional functions are used. For each Bloomberg function, type the mnemonic listed on the Bloomberg terminal, then press the <GO> key to execute. Each of the functions listed below can be run for a specific security by typing the ticker symbol of the security followed by the YELLOW KEY corresponding to the asset class of the security, then typing the mnemonic.

Also available on the Bloomberg terminal are candlestick studies from Cynthia Kase. Type KASE <GO>. From the list on the left side, choose “KaseStatWareTM,” “Studies” “Filtered Candlesticks.”

Bloomberg Mnemonic	Technical Study
BOLL	Bollinger Bands
CNDL	Candlestick Charts
CHKO	Chaikin Money Flow
GOC	Ichimoku Charts
MACD	Moving Average Convergence/Divergence
OBV	On-Balance Volume
RSI	Relative Strength Index
TAS	Stochastics

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