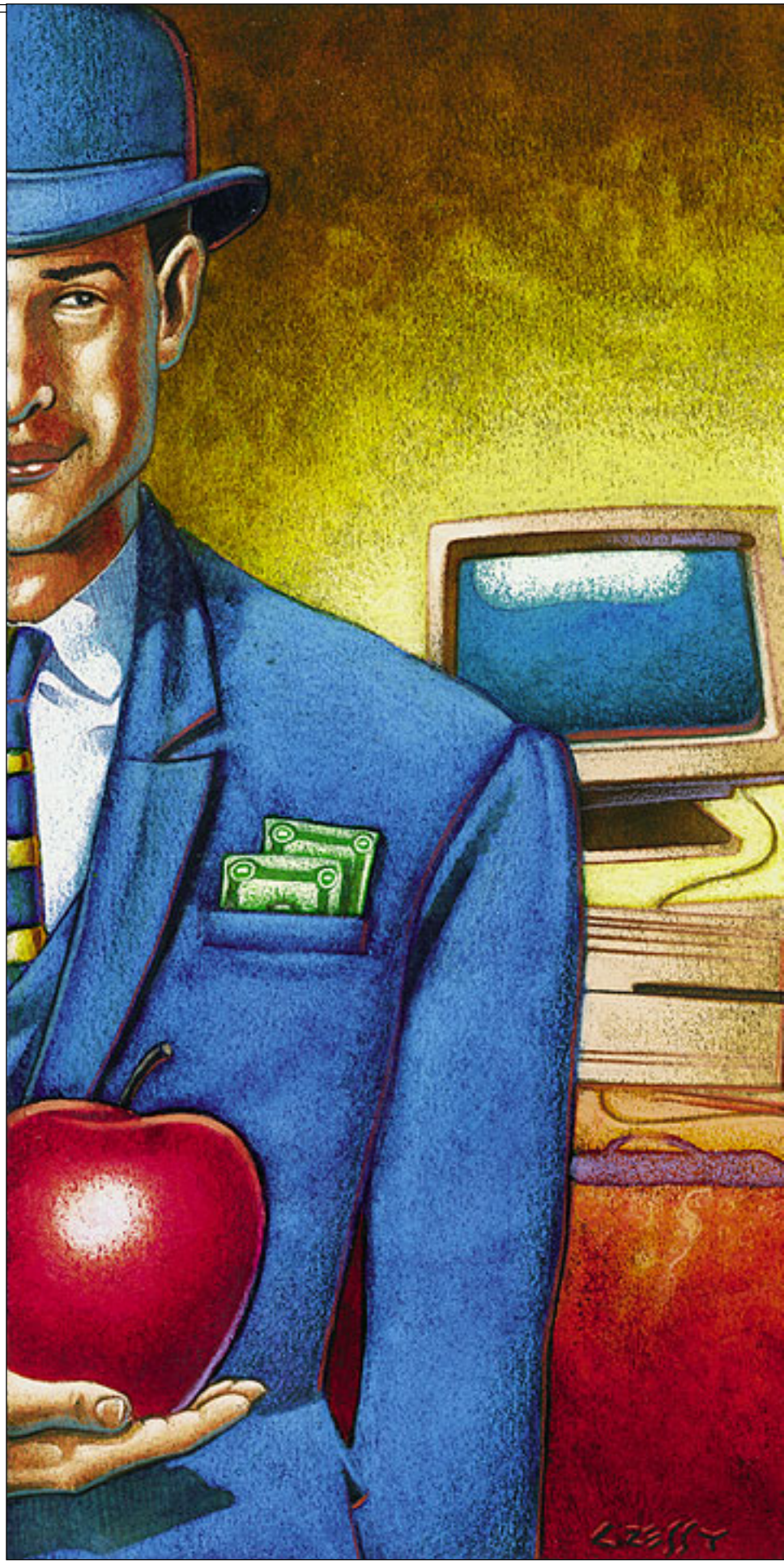
Hidden Divergence

Divergence, which is a term that technicians use when two or more averages or indices fail to show confirming trends, is one of the mainstays of technical analysis. Here's a new way to use oscillators and divergence as well as methods to locate entry levels during a trend.

Most technical indicators mirror or confirm price movement. When price moves up, the indicator moves up; when price moves down, the indicator moves down. When prices peak, the indicator peaks; and when prices bottom, the indicator bottoms. Sometimes, however, a discrepancy occurs between price and indicator movement. That discrepancy is known as *nonconfirmation* and can be seen most clearly on overbought or oversold indicators as well as on indicators that move above or below a zero line.

Many traders only learn to recognize the type of nonconfirmation that occurs at market tops and bottoms, which is the classic divergence. But there are other forms of nonconfirmation I call *hidden divergence* (HD) that, when present, offer additional profit potential.

by Barbara Star, Ph.D.



MIKE CRESSY

Hidden divergences are the opposite of classic divergences. Classic divergence looks for lower low prices accompanied by higher indicator values at price bottoms and higher high prices accompanied by lower indicator values at price tops. Hidden divergences, on the other hand, seek higher price lows accompanied by lower indicator values during up moves and lower price highs accompanied by higher indicator values during down moves. Most hidden divergences signal continuation moves in the direction of the prevailing trend.

Here are examples of each type of nonconfirmation using stock and commodity charts. Even though many indicators display nonconfirmations, I will use a five- to 15-unit (5-15) price oscillator to illustrate various nonconfirmations. The oscillator is simply the difference between a five-unit exponential moving average (EMA) of the closing price and a 15-unit exponential moving average of the closing price. The value of that difference fluctuates above and below a zero line.

CLASSIC DIVERGENCE

Classic divergence is one of the best-known types of nonconfirmation. A divergence is a separation between price and indicator that warns of a possible short- to intermediate-term change of trend. A bullish divergence arises during a down move when price makes either a lower low or a double bottom but the indicator makes a higher low or a double bottom. A bearish divergence occurs during an up move when price makes either a higher high or a double top and the indicator makes a lower high or a double top. Classic divergences can occur at price tops or bottoms and also at price corrections.

The chart of PepsiCo [PEP] in Figure 1 shows both a bearish and a bullish divergence. The stock price rose from April to the end of May 1995. The oscillator made a top in early to mid-May at point A. However, when price made a top in late May (point B), the oscillator made a second top at a lower level. This was a sign that price momentum was decreasing and warned of a potential change in trend either from up to down or sideways. The stock made a corrective decline going into July. At the price low in mid-July (point D), the oscillator made a second bottom, but at a higher level. This signaled that downside momentum had decreased and either a potential rally or sideways move could occur. The bullish divergence was confirmed as price resumed its up move.

THE BULLISH HIDDEN DIVERGENCE

In a bullish HD, the indicator makes a lower low, but price makes either a higher low or a double-bottom low. This type of nonconfirmation occurs mainly during corrective declines in an

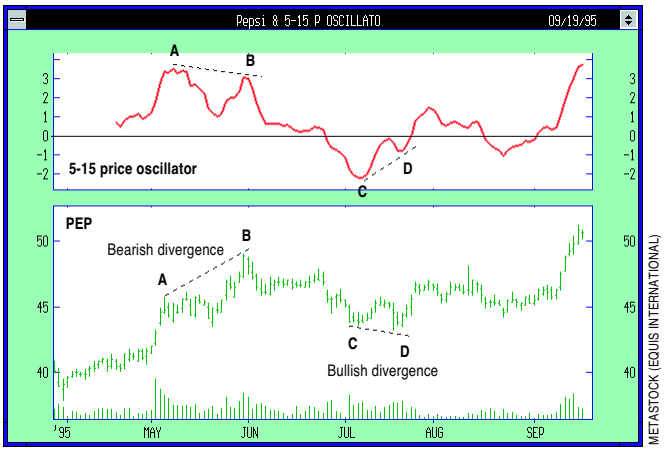


FIGURE 1: CLASSIC BULLISH AND BEARISH DIVERGENCE. The 5-15 price oscillator made lower highs, while the price of PepsiCo kept making higher highs into late May, resulting in a classic bearish divergence pattern. At the price lows in July, the oscillator showed bullish classic divergence by making a higher low.

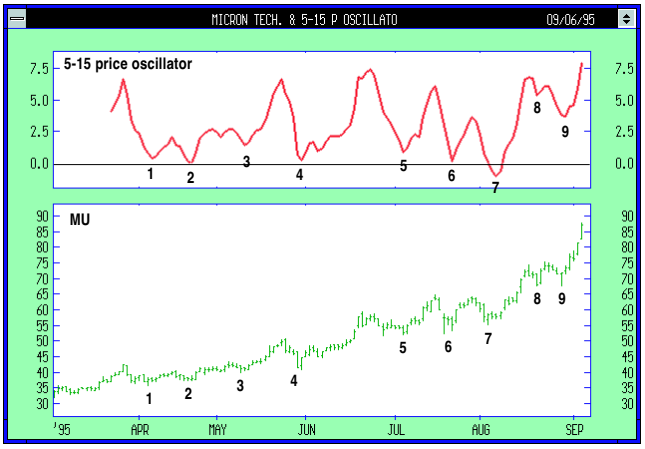


FIGURE 2: BULLISH HIDDEN DIVERGENCES ON MICRON TECHNOLOGY. Bullish hidden divergences appear in uptrending markets when the indicator makes a series of lower lows but price makes a series of higher lows.

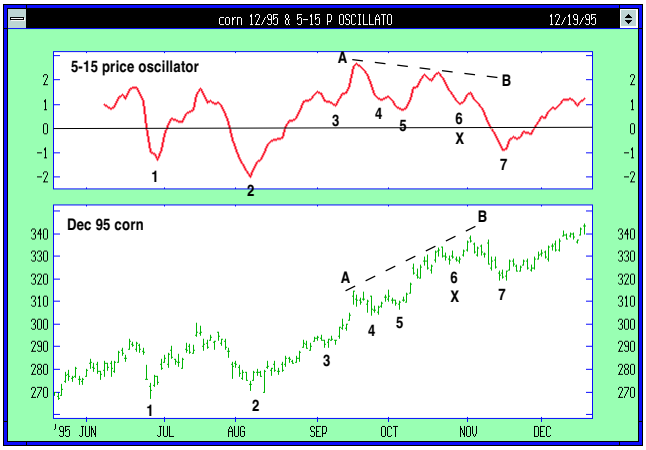


FIGURE 3: BULLISH HIDDEN DIVERGENCES ON DECEMBER 1995 CORN. Most bullish hidden divergences occur between two successive indicator lows. Occasionally, however, it is helpful to use the second-point lookback technique, as was the case at point 7.

uptrend, but it may also be found on occasion at price retests of the lows. Bullish HDs indicate underlying strength in the security and often make good entry or re-entry points.

During its spectacular rise (and before its equally spectacular decline), Micron Technology [MU] displayed many bullish hidden divergences (Figure 2) in 1995. At point 2, the indicator made a lower low than it had at point 1, but price made a higher low at point 2 than it had at point 1. In May, at point 4, the indicator was lower than at point 3, but the price low at point 4 made a double bottom with the price low at point 3 before price resumed its advance. As the indicator made lower lows in July and August at points 6 and 7 than it had at point 5, price continued to make higher lows. Another double-bottom price low occurred at points 8 and 9, but the indicator made a lower low at point 9, signaling the potential for additional strength.

Just as classic divergence does not appear on every price chart, so it is with hidden divergence. But when they do appear, they are worthy of attention. The trick is to train your eye to recognize one when it presents itself.

The year 1995 also produced a strong bull market in the grains. December corn made a $3,000 runup in price during a five-month period (Figure 3). Classic bullish divergence was not evident at the August price double-bottom retest of the July lows, but hidden divergence was very much in evidence as the indicator made a lower low at point 2 that was not confirmed by lower prices. Point 3 represents a confirmation rather than an HD because both price and oscillator dipped approximately at the same time.

The next HD occurred at point 5. In October, the oscillator at point 5 was lower than it had been at 4, yet the price low was higher than it had been at either points 3 or 4. This was another place to enter or buy more contracts. Traders would have seen the bearish classic divergence in September and October as price continued to make new highs, while the indicator made lower highs. Some would have thought the move was over, but those who exited might have spotted the HD re-entry opportunity at point 7 when the indicator was well below point 5 and the price low was higher than it had been at point 5, suggesting a price rally.

The "X" at point 6 in Figure 3 calls attention to a variation that I call the *second-point lookback*, which can be used when looking for hidden divergences. Most of the time, the HD will occur between the last two indicator lows such as those between points 4 and 5. Sometimes, though, it is important to look at the low made two indicator points ago. In this case, the indicator low at point 7 was lower than the indicator low at 6 — the preceding indicator low — but then so was the price low. That produced a confirmation with price and would appear to negate the pattern. However, a look back to the

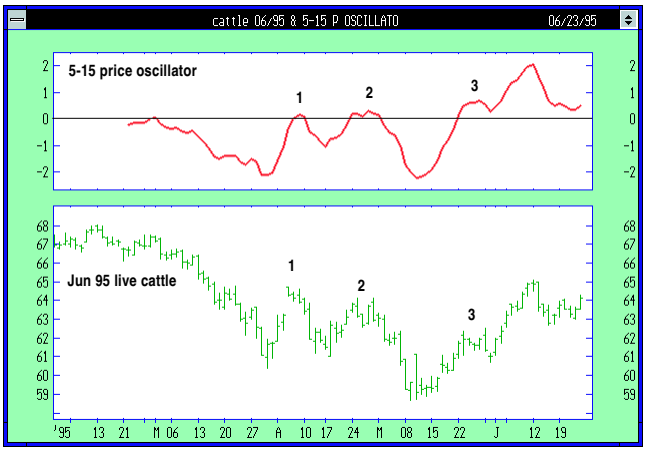


FIGURE 4: BEARISH HIDDEN DIVERGENCE ON JUNE 1995 LIVE CATTLE. Bearish hidden divergences appear in downtrending markets when the indicator makes a series of higher highs but price makes a series of lower highs.

FIGURE 5: KANSAS CITY SOUTHERN INDUSTRIES WITH BEARISH HIDDEN DIVERGENCE. Several bearish hidden divergences appeared during a protracted price decline on this stock.

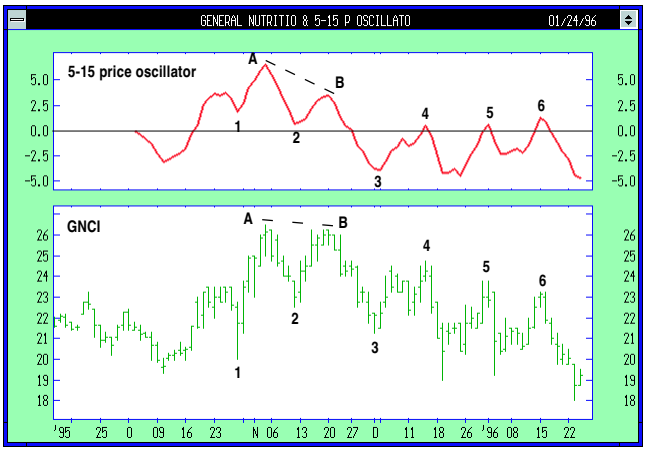


FIGURE 6: VARIOUS NONCONFIRMATIONS WITH GENERAL NUTRITION. Stock prices showed a bullish hidden divergence as it moved up and bearish hidden divergences during its downturn. A classic bearish divergence occurred at the price top prior to the decline, and a trendline drawn from the price lows from points 1 and 2 helped confirm the trend change.

indicator low at point 6 showed that it was higher than point 5 and that point 7 was lower than both points 5 and 6 *and* that the price low was higher at both points 6 and point 7 in relation to point 5. Many times, this indicates either a resumption of the up move or a rally to retest the top.

THE BEARISH HIDDEN DIVERGENCE

In a bearish HD, price makes a lower high, but the indicator makes a higher high. This type of nonconfirmation is mainly found during corrective rallies in a downtrend but may also occur during retests of a price top. Bearish HDs signal potential underlying weakness in a security.

An example of bearish hidden divergence appeared on the June 1995 cattle chart (Figure 4). Following a steady two-month decline, price rallied in April to form point 1. After a brief decline, price rallied again to form point 2, which moved the indicator to a higher level than it had been at point 1. However, price made a lower high at its own point 2. The lower price high, accompanied by a higher indicator high, produced a bearish hidden divergence, and prices continued their decline. In May, another price rally ensued, taking both price and indicator to their respective point 3s. Because the indicator was higher at point 3 than at point 2 and the price high was lower at point 3 than at point 2, point 3 would be labeled as another hidden divergence.

But this proved to be a false hidden divergence, as price rose above the point 3 high within the next few days. A false hidden divergence is similar to a false classic divergence in that momentum has changed but not enough to produce a major price change. A trendline drawn from the price top of point 2 to the price top of point 3 would have been broken to the upside, suggesting a place to exit the trade.

The NYSE stock in Figure 5, Kansas City Southern Industries [KSU], declined during the last half of 1994. Several of the corrective rally attempts in the stock produced bearish hidden divergences. A price rally push in July (point 2) double-topped with the June rally. However, the indicator at point 2 was higher than it was at point 1.

This bearish HD led to a resumption of the decline. Point 3 confirmed the decline because it made a lower high. However, the August price rally drove the indicator above the zero line into positive territory (point 4). But the price high at point 4 was lower than at point 3, which set up another bearish HD. Price point 5 was a confirming move, since both price and the oscillator made lower highs. At point 7, however, a potential bearish HD emerged when price made an approximate double top, with the price high at point 6 while the indicator was higher at point 7 than it had been at point 6 and price continued to move down.

ALL TOGETHER NOW

As can be seen in Figure 6, General Nutrition [GNCI] displayed both bullish and bearish HDs as well as bearish classic divergence. As price rose from $19^1/_2$ to 26, the stock showed a bullish hidden divergence at point 2, which led to the double top where the oscillator formed a classic bearish divergence at point B.

If a trendline were drawn from the price lows at points 1 and 2, it would have broken to the downside in November and a change of trend suggested. At point 3, both price and the oscillator made lower lows than they had at point 2, which helped confirm the trend change. (Even though the price lows at points 2 and 3 were higher than at point 1, the indicator was lower at both points 2 and 3 than at point 1 so the pattern did not meet the second-point lookback criteria.) Point 4 was a confirmation move rather than a nonconfirmation.

The first bearish HD occurred at point 5, when the oscillator double-topped at its point 4 high and price was below its point

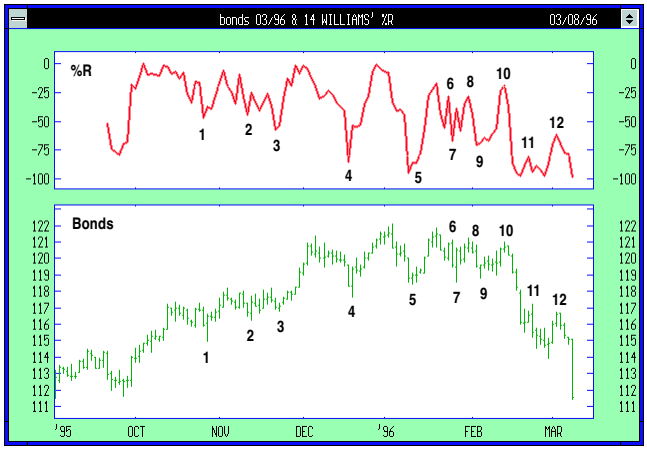


FIGURE 7: BULLISH AND BEARISH HIDDEN DIVERGENCE USING WILLIAMS' %R. Many indicators can display hidden divergences. Here, the US Treasury bonds show hidden divergences with Williams' %R, which is found on most software charting packages.

FIGURE 8: BULLISH AND BEARISH HIDDEN DIVERGENCE USING THE MOMENTUM INDICATOR. Another indicator commonly found on charting software is momentum. It also showed hidden divergences on US T-bonds.

4 high. The next bearish HD took place at point 6 where the indicator rose above its point 5 high, but price failed to take out its point 5 high. Price then continued to decline to the $18 level.

Figure 6 also shows that not all hidden divergences lead to large price moves. Let me note here, however, that hidden divergences generally do help to keep a trader on the right side of the trend.

EXPERIMENT WITH YOUR FAVORITES

There is nothing magical about the 5-15 price oscillator; hidden divergences appear on many indicators. Figures 7 and 8 illustrate HDs on the June 1996 bond chart using Williams' %R† and momentum† indicators, both of which can be found on most charting software. Different indicators will display HDs at different places on the price chart, and some indicators may produce more hidden divergences than others.

The 14-unit Williams' %R exhibited bullish hidden divergence at the indicator double bottom at points 1 and 2 as price made higher lows at each of those points. Other bullish HDs occurred at points 2 and 3, 3 and 4, 4 and 5 and points 7 and 9. An indication of a trend reversal appeared at point 10 when %R made a higher high than it had at either points 6 or 8, but the price high at point 10 was lower than at points 6 and 8. Price support at point 9 was broken to the downside following the bearish HD. The decline continued following another bearish HD at point 12.

Both bullish and bearish HDs occurred at similar places on the price chart using a 12-unit momentum indicator on the same bond chart. (The 12-unit momentum indicator is the default level on MetaStock software.) Despite bearish classic divergence at points A, B and C on the momentum indicator as price moved up above the 120 level during the last four months of 1995, bullish HDs were evident between points 1 and 2, 2 and 3, 3and 5, and 5 and 7. The first sign of a bearish HD came in January, when point 6 on the indicator double topped with point 4 as price made a lower high at point 6. The trend change was confirmed when price broke support at points 5 and 7. The second bearish HD occurred at points 8 and 9, which was followed by a swift five-point decline.

Just as classic divergence does not appear on every price chart, so it is with hidden divergence. But when HDs *do* appear, they are worthy of attention, as they can add to your profit potential by keeping you on the right side of a trend or by confirming a trend change. The trick is to train your eye to recognize a hidden divergence when it presents itself. Now that you know what to look for, see if you can spot them on the indicators you like to use.

Barbara Star, a university professor and part-time trader, leads a MetaStock users group and is vice president of the Market Analysts of Southern California.

RELATED READING

Star, Barbara [1993]. "Volume variations," *Technical Analysis of* STOCKS & COMMODITIES, Volume 11: May.

_____ [1993]. "Oscillator variations," *Technical Analysis of* STOCKS & COMMODITIES, Volume 11: April.

†See Traders' Glossary for definition

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