# MACD divergences

No matter what market you trade, taking a top-down approach can save you from bad decisions. Here's how to use the MACD indicator to identify longer-term turning points that set up short-term trades.

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Although many stock traders believe short-term trading is a new phenomenon, it's been going on for years in the foreign exchange (Forex) market. Unfortunately, many short-term Forex traders (like stock traders) do not pay enough attention to the longer-term picture provided by monthly and weekly data.

One reason monthly and weekly analysis is important is common technical studies such as the moving average convergence-divergence (MACD) tend to give stronger signals when longer-term data is used. We'll show how to use the MACD indicator to establish a top-down (long-term to short-term) analysis approach.

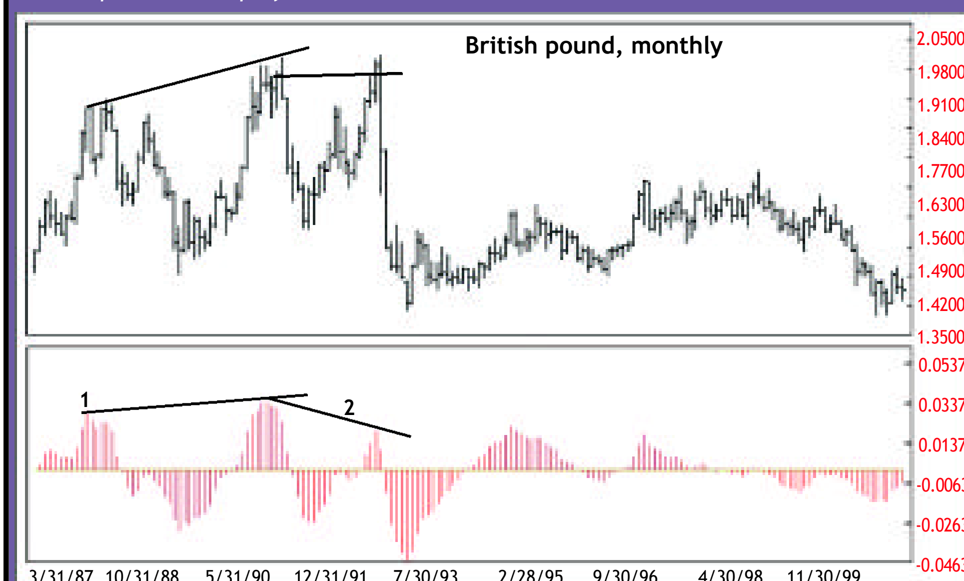
Figure 1 (right), a monthly chart of the British pound with the MACD histogram (see "Moving average convergence-divergence," page 2), shows how starting with a long-term view will keep you on the correct side of the market. In early 1991, the first rally in the British pound to the 2.000 level was confirmed by the MACD, as indicated by the upward-sloping line 1. However, the second test of the same level in August 1992 corresponded with a negative divergence between the price and the MACD, indicated by the downward-sloping line 2. (A divergence occurs when price moves in one direction and the indicator moves in the opposite direction.) Longer-term divergences such as this can alert the trader to potential weakness in the market. Had you reacted to this sign, you would have been ready when the free fall started.

### Basic MACD rules

As with most technical indicators, the most reliable MACD signals occur when the monthly, weekly and daily analyses are all in agreement. However, this is not always the case; a lack of agreement between the time periods may cause some traders to miss significant opportunities

**FIGURE 1 BIG PICTURE**

*The MACD divergence identified by line 2 on this monthly chart warned that the British pound was ripe for a downturn.*



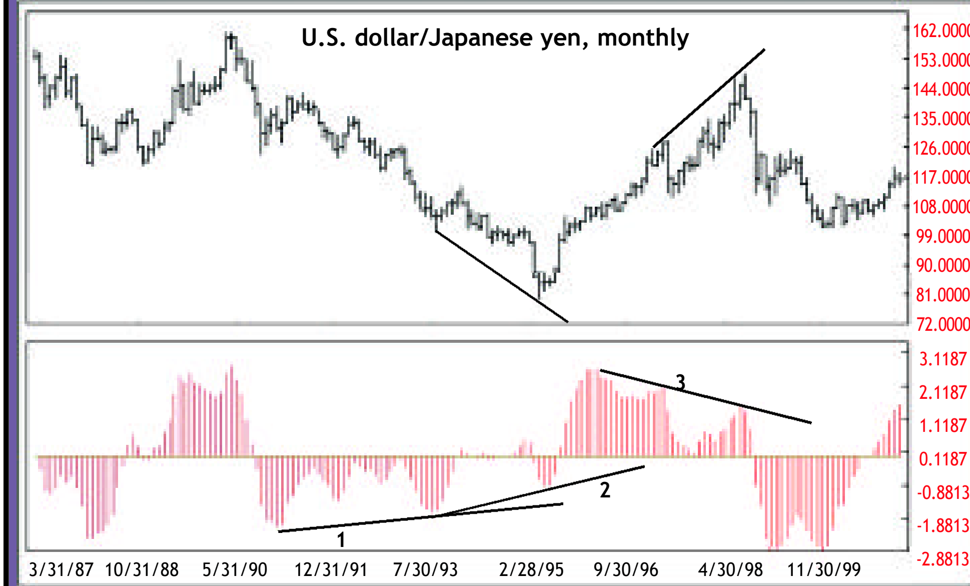

Source: Strategem Software and Bridge Data or trade the wrong side of the market.

To get a better feel for how to use the MACD, let's first set a few guidelines and then follow a sequence of events in the Japanese yen.

- The trending character of the currency markets lends itself to a top-down approach where the shorter-term trades are confirmed by the longer-term trend.
- Divergences in the monthly MACD signal the major trend has changed.
- Divergences in the weekly MACD histogram signal corrections within the major trend.
- Divergences in the daily MACD histogram also signal corrections within the major trend. However, trades against the long-term trend should be treated carefully.

**FIGURE 2 MONTHLY DIVERGENCES**

*The longer-term divergences on the monthly Japanese yen chart provided advance notice of the major switch from downtrend to uptrend in 1995.*




Source: Strategem Software and Bridge Data

## Monthly analysis

Figure 2 (right) shows a long-term chart of the Japanese yen together with a monthly MACD histogram. From April 1990 to April 1995, the value of the yen rose 50 percent, when the exchange rate dropped from 160 to 80 yen per dollar. (For anyone not familiar with exchange rates, a simple way of looking at this is that in April 1990 it took 160 yen to buy one dollar; a few years later, it took only 80 yen.)

Today you can trade the Forex market in $100,000 lot sizes, with leverage as high as 100 to 1, which means you can participate in the market with only a $1,000 margin requirement. (This increases both the profit potential and risk of trading in this market.) When the yen doubled in value to the dollar, it equaled a change in the exchange rate of 80 yen (160-80) or 8,000 "pips," which is the Forex term for the smallest possible price increment. To calculate how much a one-pip move is worth in dollars, divide $1,000 with the current number of yen to the dollar. At the beginning of the above move each one-pip change was worth $6.25 (1,000/160); at the end of the move it was worth $12.5 (1,000/80); and on average over the entire period it was worth $8.3 (1,000/120).

During this appreciation of the yen, the MACD formed its first divergence in 1993, shown by the upward sloping line 1. This divergence continued to grow into 1995 (line 2). Double divergences, especially those formed over a two-year period when viewed using monthly data, are strong signs a major turning point is at hand.

The dollar then rallied from 80 yen in early 1995 to 145 yen in June 1998. During this rally, the MACD formed an initial divergence in 1997, and a much stronger one in 1998, as indicated by line 3. At this point, even the shortest-term Forex trader should have been warned that a shift in the overall bias, from being bullish the dollar to being bearish the dollar, was warranted. The ensuing decline that ended in the latter part of 2000 took the dollar back to the 100 area.

Consequently, during the early 1995 to mid-1998 period, the monthly MACD told you to emphasize the long side and, more often than not, buy dollars and sell yen. Between mid-1998 and late 2000,

*continued on p. 3*

## Moving average convergence-divergence

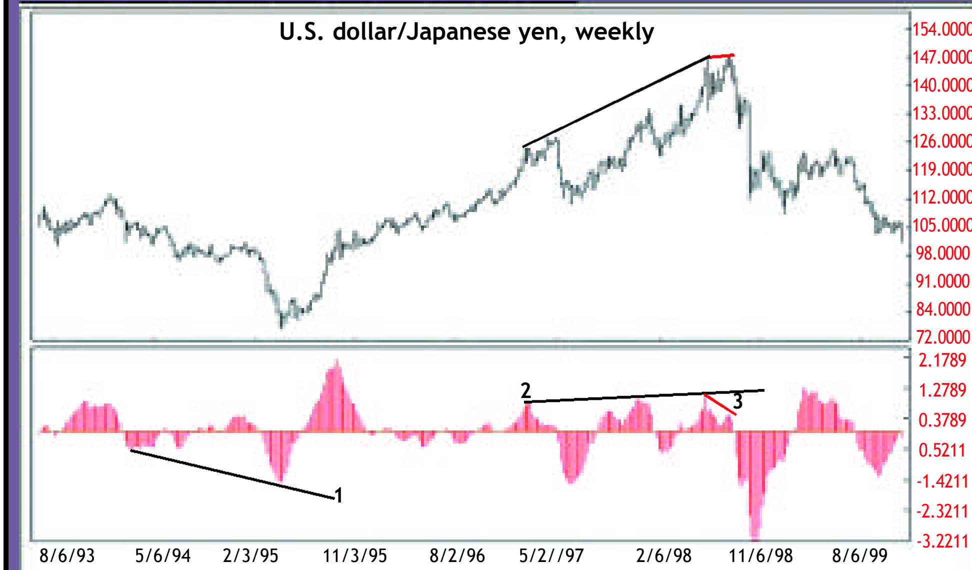
The moving average convergence-divergence (MACD) indicator, designed by Gerald Appel, is created by taking the difference between two exponential moving averages (default values of 12 and 26 days). An additional nine-day EMA is typically applied to the resulting oscillator to provide a signal line. Accordingly, the standard indicator is sometimes referred to as the "12-26-9" MACD.

The MACD has a number of uses, including crossovers of the MACD and the signal line. Essentially, a buy (sell) is issued when the signal line crosses above (below) the MACD line.

The difference between the MACD line and the signal line is sometimes plotted as a histogram below the actual MACD. This is simply an alternate way of representing MACD-signal line crossovers: When the histogram crosses above the median line, it represents the signal line crossing above the MACD line (a buy signal); the opposite is true when the histogram crosses below the median line. Also, divergences between the MACD and price can signal trend exhaustion (see Figures 1-4).

**FIGURE 3** **WEEKLY DIVERGENCES**

*Weekly divergences help identify corrections within the major trend. The trick is to always put the weekly chart in the context of the longer-term, monthly chart.*




Source: Strategem Software and Bridge Data

the monthly MACD favored the short side, which would have meant selling dollars and buying yen

## Filling out the picture: Weekly and daily analysis

Line 1 in Figure 3 (above) shows there was no divergence formed by the weekly MACD histogram during the yen's initial appreciation in the early 1990s. However, the MACD is often misleading in strongly trending markets. To its credit, it did show a strong burst of upside momentum on the dollar's first rally in 1995.

During the subsequent appreciation of the dollar, the weekly MACD never reached the initial high levels of 1995. However, it did make marginally higher highs until August 1998, when the histogram formed an eight-week negative divergence (line 3). Looking back to Figure 2, you can see that the monthly MACD histogram formed a second major divergence at the same time. In keeping with the MACD guidelines, there was strong evidence of a significant turning point with both the weekly and monthly MACD signals working in tandem.

Now, let's look at the daily data in Figure 4 (bottom left). Note that by early August 1998 the daily MACD histogram was forming a long-term divergence to the downside, as indicated by line 1. This divergence later was confirmed by a shorter-term divergence (line 2), which was given further weight when the MACD histogram dropped below the previous lows — a sign of greater downside momentum.

This is where those traders who focus solely on the daily and intraday data most often interpret the MACD incorrectly. A trader who has missed a major rally often looks at the first daily divergence in the MACD histogram as a reason to trade the short side. But if the daily divergences are not accompanied by weekly divergences, as they were in this case (see Figure 3), the corrections indicated by the daily MACD are generally short-lived. They can be traded by scalpers, but it is often better to set up new entries in the direction of the weekly and monthly trend.

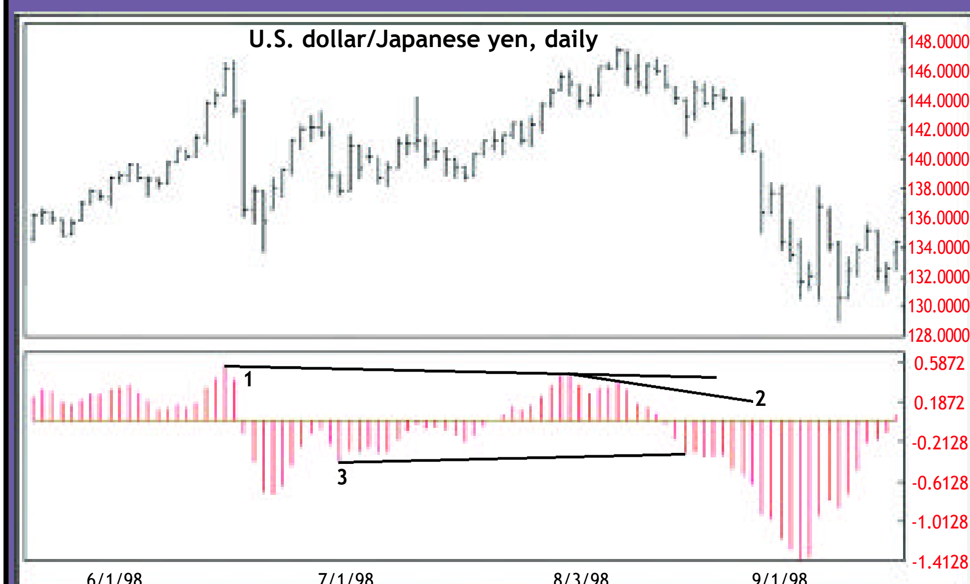
## Catch the trend

Because the MACD indicator works like an oscillator based on a trend-following indicator (the moving average) it lends itself especially well to catch currency trends, both with and against the longer-term underlying trend.

To make the most of this indicator, however, it's important that you work with a top-down approach, always making sure you know what type of trending move you can expect within the context of the larger trend.

**FIGURE 4** **DAILY DIVERGENCES**

*Daily divergences must always be considered in light of what the weekly and monthly charts say. Look for opportunities where the signals on all three time frames are in sync.*




Source: Strategem Software and Bridge Data