Simplified momentum filters improve trading

Those who apply weekly filters to daily-based trading signals should be aware of a new twist to the technique that can eliminate many of the headaches.

By C.A. Kase

Traders often employ indicators that "filter" out bad trend signals given by the trading indicators. The trick is, when you find a good filter, making sure it, too, doesn't give bad signals.

While no one likes taking on extra risk, many corporate traders are bound by constraints individual traders do not face. Their jobs depend on developing accurate, low-risk trading strategies. This usually means increasing percent winning trades — and decreasing drawdowns — as well as overall performance.
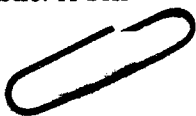
One way to do both, obviously, is to cut down on bad trades. A filtering indicator — one that does not trigger the trade but works in the background — can help accomplish this. (One familiar with Alexander Elder's "triple screen" method, for example, should be no stranger to filtering.)

Trading filters can consist of almost anything from a "noise" filter to sentiment indicators. They most commonly consist of either a momentum- or strength-based oscillator. The trend-following indicator may signal a buy, but the oscillator can tell us momen-

C.A. Kase is a Staten Island, N.Y.-based trader who formerly was an advisor of technical analysis and risk management for Petronal, a trading operation associated with Saudi Arabia's Samarac.

tum is turning back down.

Often, the best filtering indicators are those of a longer-term time period. Someone trading from daily open-high-low-close bars, for example, can filter out bad signals by consulting a weekly momentum-based indicator like the rate of change (ROC), a strength indicator like the relative strength index (RSI) or the topic of this article, the slow stochastic. A sen-

Forming synthetic longer-term bars

1) N = number of bars to merge, for example, N = 5 to turn a daily into a weekly
2) HighN = Max(H[0] to H[n-1])
3) LowN = Min(L[0] to L[n-1])
4) OpenN = Open[n-1]
5) CloseN = Close[0]
6) Previous CloseN = Close[n]
7) Number of periods for length of indicators = Length*n

Substitute values above in any normal formula for indicators; smooth as necessary.

sitive momentum indicator — rather than a trend-following indicator — overcomes the feared lag introduced when using a longer time frame, because research shows momentum signals often precede trend-following signals.

The idea is to act on only those trades "permitted" by the longer time frame indicator. The longer (what I call "screening") timeframe is usually three to five times greater than the time unit you are trading (the "monitor" time frame). So when trading 15 minute bars, for instance, you should employ

filtering indicators no less than 45 minutes long.

Here, the longer-term filtering indicator to be analyzed is the stochastic. "Daily D-mark and nine-week stochastic" (at right) illustrates the technique. It shows the daily Deutsche mark along with a "screening chart" of the weekly D-mark futures and a nine-week slow stochastic for roughly the same period.

The stochastic indicator consists of two lines, %K and its smoothed counterpart, %D. The slow stochastic indicator consists of the smoothed %D (often called slow %K) and a further smoothed %D called slow %D. The indicator determines a price range for a certain period, then measures the most recent price in relation to that range on a scale of zero to 100.
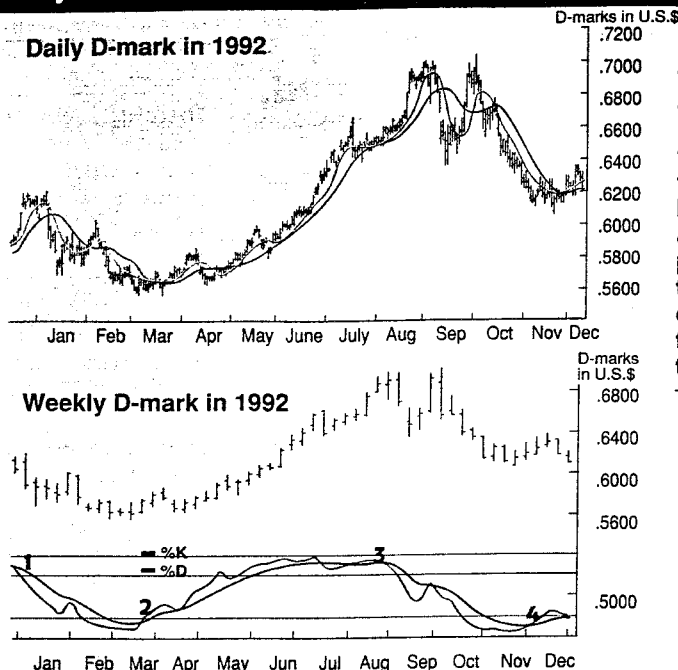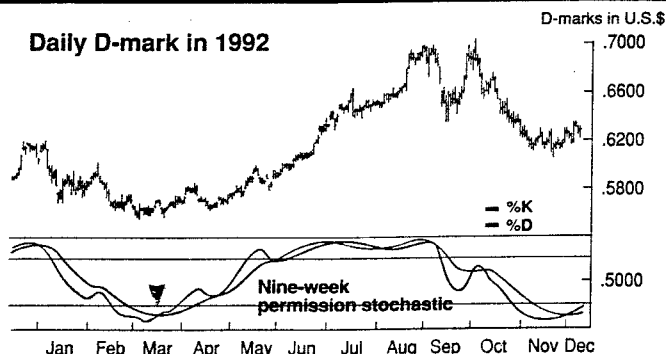
Different traders have varying approaches toward interpretation of the stochastic indicator. My interpretation is to use it as a filter and, when permitted, to go long under the following conditions:

One The two stochastic lines are near the top of the chart, close in value and not yet turned down. While the classic interpretation for this is that the market is in an "overbought" condition during trends, the indicator often rides the top of the chart before turning down at the end of the trend.

Two The stochastic lines are near the bottom of the

Daily D-mark and nine-week stochastic

Daily D-mark in 1992

D-marks in U.S.$
.7200
.7000
.6800
.6600
.6400
.6200
.6000
.5800
.5600

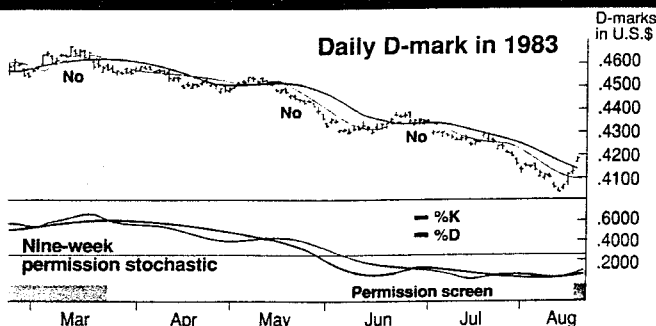Jan Feb Mar Apr May June July Aug Sep Oct Nov Dec

Here, only short trades would be allowed between points one and two, and between three and four; longs would be allowed between points two and three. The stochastic used as a filter comes from the weekly chart.

Weekly D-mark in 1992

D-marks in U.S.$
.6800
.6400
.6000
.5600
.5000

— %K
— %D

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Daily D-mark and permission stochastic

Daily D-mark in 1992

D-marks in U.S.$
.7000
.6600
.6200
.5800
.5000

— %K
— %D

Nine-week permission stochastic
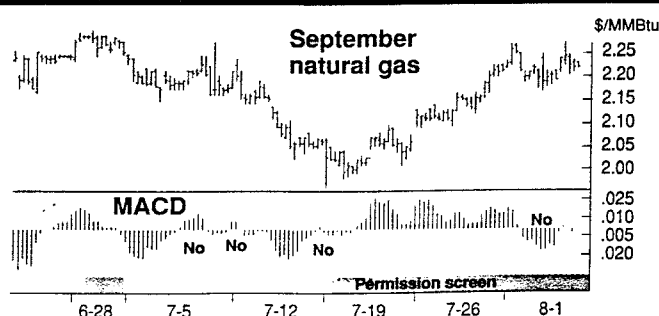
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Here, the "buying" permission is given on March 26, a day earlier than the regular, nine-week stochastic.

Permission stochastic, color coded

Daily D-mark in 1983

D-marks in U.S.$
.4600
.4500
.4400
.4300
.4200
.4100

No
No
No

— %K
— %D
.6000
.4000
.2000

Nine-week permission stochastic

Permission screen

Mar Apr May Jun Jul Aug

This D-mark futures chart shows the bad trades that can be caused by a moving average. Those whipsaws that could have been filtered out by the permission screen are marked "No."

Natural gas and permission MACD

September natural gas

$/MMBtu
2.25
2.20
2.15
2.10
2.05
2.00

MACD
.025
.010
.005
.020

No No No

No

Permission screen

6-28   7-5   7-12   7-19   7-26   8-1

Signals are generated here by looking for MACD crossovers of the zero line. "No" marks those the permission screen would not allow us to take.

Source: Omega Research

---

chart and the slow %K is above the slow %D as well as the 15% level. (I usually require two percentage points difference.)

Three The stochastic is below 80% and above 15% but %K is above %D.

If none of these conditions exist, then look for rules permitting short trades. These are obtained simply by inverting the preceding rules.

Looking to the chart, "Daily D-mark and nine-week stochastic" (at left), you would take short trades between points one and two or between points three and four. But between points two and three you would only execute long trades.

Indication of trouble

While all this does not constitute groundbreaking research, it's another way to filter out bad signals. However, combining weekly indicators with daily indicators can lead to problems. So here are some other techniques to improve filtering with longer-term indicators:

First, for mechanical back-testing, two data streams are needed — daily and weekly data. Otherwise, testing can become cumbersome or misleading because of rollovers and normalizing of different contract months.

Second, and most critical, "weekly" indicators seldom reflect an entire week. Almost all charting software provides only one weekly data point per week. Their "week" can be one day (as of Monday), two days (as of Tuesday), and so on. Only on Friday does the data point reflect an entire five days, when the program moves on to the next data point.

It's possible to solve both these problems with a little makeover. When using filters from other time frames, I use "synthetic bars," a synthetic open, high, low and close that can be inserted into any indicator formula. For instance, my "weeks" consist of not Monday-Friday but a "rolling" set of the last five days — which could be any five days (see facing page, "Forming synthetic longer-term bars"). These allow you ⧯

to create a longer-term time frame using the same daily data, on the same daily chart.

"Daily D-mark and permission stochastic" (page 41), shows a synthesized version of the stochastic shown earlier, also known as the "permission stochastic." This stochastic is virtually identical to the usual version shown in the first chart. But even better, signals generated by the permission stochastic appear

to lead the others by an average of two days.

Notice the signal at point two on "Daily D-mark and nine-week stochastic" (see page 41). Condition two of my rule above — %K above both %D and the 15% line — was satisfied March 27. Applying the same to the permission stochastic, shown in the permission stochastic chart, the criteria is met March 26.

In the end, simplicity is the most important advantage of filters.

Differentiating "buying" versus "selling" environments with color gives a clearer view. The bottom of "Permission stochastic, color-coded" (page 41) turns green for permission long and red for permission short. Notice how the permission screen eliminates some of the losers, usually moving average whipsaws, marked "No."

The permission stochastic can filter other markets and other entry techniques as well. Moving away from the currencies, the final chart, "Natural gas and permission MACD" (page 41), offers two new items: It incorporates the moving average convergence-divergence (MACD) indicator — not moving average crossovers — for trading signals, and is based on half-days.

Again, notice the number of whipsaws eliminated by the permission screen. Because the price chart consists of half-day bars, the permission stochastic is based on periods five times in length, or 2 1/2-day periods.

Simple gifts

Some institutional/corporate traders still may have difficulty with this method of analysis. Those who rely on professional advisors for a weekly strategy — regarding in-house trading as a temporary step on the way up the ladder — never develop the expertise necessary to interpret the filter properly. Also, trading filters help avoid the "information overload" that corporate traders often experience.

In the end, simplicity is the most important advantage of filters. The stochastic filtering rules listed earlier do not require much technical know-how to implement. Even so, they easily can run aground when the filtering indicator does not reflect what it's supposed to. By eliminating the need to watch more than one chart and freeing you from rigid and sometimes misleading weekly data, the permission stochastic will make sure those filtering rules — or your own — work correctly. **FM**