Trading Options With Bollinger Bands And The Dual CCI

by D.W. Davies

Combining two classic indicators, the commodity channel index (CCI) and Bollinger bands, can be a potent timing tool for options trading. STOCKS & COMMODITIES contributor D.W. Davies was inspired by John Bollinger's article "Bollinger Bands" from the 1993 S&C Bonus Issue to develop a way of using the CCI to confirm Bollinger bands' trading opportunities. His technique uses a new variation of the CCI, the dual CCI. Here's how to put the technique to work.

To trade options successfully, traders need to consistently and correctly predict three elements of the underlying asset: price, price direction and the amount of time it will take for price to arrive at the expected price changes.

Bollinger bands are lines plotted around price to form a trading band or range. The bands are used to identify trading opportunities where market prices are relatively overvalued or undervalued. Rather than providing absolute buy and sell signals, Bollinger bands tell the trader whether prices are high or low on a relative basis. The concept of channels or trading bands is well recognized as an aid in determining the probable range of prices.

The centered channel analysis (CCA) technique tries to define cycles and predict price by drawing price bands around centered moving averages of price and measuring the amplitude of price cycles within the price channel. The disadvantage of centered channel analysis is that it requires the trader to visualize or project the channels into the future, which introduces an element of subjectivity. Because of this subjectivity, the CCA is not ideally suited for technical analysis.

In my previous article, I used the commodity channel index (CCI) as a timing tool to confirm trading opportunities suggested by the CCA. In this article I present a system using Bollinger bands and the CCI.

My system uses a smoothed, dual CCI to confirm trading opportunities suggested by the Bollinger bands.

TRADING ENTRY AND EXIT

The traditional Bollinger bands method plots a 20-day moving average that is not centered. Around this is plotted a band equal to two standard deviations of the price over a 20-day period. The 20-day period is popularly considered to be the optimum timeframe for the intermediate trend, so we will stay with the 20 day moving average period for our Bollinger bands. The Foundation for the Study of Cycles recognizes a cycle length of approximately 74 days as being a common cycle in the equity markets. I have observed a prominent cycle length of 72 days in the OEX options market, so I use a 72-day CCI as my timing tool in combination with the 20-day Bollinger band. This then relates price changes and their technical evaluation to recognized cycles of market activity.

As channels of price variance, Bollinger bands will contain almost 95% of price change from the average. As prices reach the outer bands, they are likely to find support or resistance as appropriate and then consolidate, correct or even reverse. Price corrections will usually reach to the level of the moving average, but they may extend to the opposite band of variance. By suggesting overbought and oversold areas, Bollinger bands objectively indicate when a price correction or reversal is likely. Bollinger bands, unlike the CCA, doesn't claim to be able to predict future reversals, but this is not necessarily a handicap to successful options trading. Option selection can be very profitable using Bollinger bands and the CCI, as we will find.

Once the Bollinger bands indicate that a correction or trend reversal is probable, you will want to use an accurate timing tool to confirm trading opportunities indicated by the Bollinger bands. The CCI is an excellent timing tool. The CCI is the average price minus the price, divided by 0.015 multiplied by the mean deviation. Like Bollinger bands, the CCI is a statistical expression of probability. I use a 72-day CCI along with a five-day smoothing of the 72-day CCI, which produces a dual line. The crossing over of the smoothed and unsmoothed line indicates *possible* entry or exit and probable change. Following are the bases for using the dual CCI:

1 Price should be at the outer limits of the Bollinger bands.

2 A crossover of the dual CCI, should it occur, is a signal for *possible* action.

3 A subsequent break in the recent price trendline confirms entry or exit opportunities.

In options trading, the biggest risk and source of profit erosion is time. So rather than wait for the price trendline to be violated, as suggested by the set of rules just mentioned, lock in profit at the first opportunity. Should a price movement prove to be a minor correction and whipsaw, which shouldn't be often, you can readily open a new position.

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The CCI will cross over its zero point approximately the same time that prices cross over a moving

average as the period of study; for example, a 40-period CCI will cross over its zero point when prices cross over their 40-period moving average. Acting on signals generated by crossovers of the smoothed and unsmoothed CCI gives you a considerable lead over price-moving average crossovers because CCI crossovers eliminate the lag inherent in using price-moving average crossovers.

Figure 1 is a daily candlestick chart of the OEX since its low on January 8, 1993, along with a 20-day moving average of price and Bollinger bands plotted about this average. Over time, price traverses the range of two standard deviations about the average. From points 1 through 4, the OEX was in a bull market despite the deep retracement to point 3. Since the March 1993 top at point 4, the market has been in a long, relatively narrow trading range and the Bollinger bands have narrowed considerably. Despite the lower lows since the March 1993 top (points 5 and 7), the price trendline (XY) is intact and directed upward, so we may consider the trend to be up.

Points 1, 3, 5 and 7 in the lower bands in Figure 1 offered windows of opportunity to successfully trade the trend. Tops 2, 4 and 6 offered an opportunity to exit the trades initiated at points 1, 3 and 5 and to consider trading the correction. Although the Bollinger bands indicated the most opportune times for possible trading, a timing tool that more specifically indicates entry and exit points would be helpful.

Figure 2 shows a72-day CCI and a five-day smoothed version of the 72-day CCI of the OEX for the same period as the Bollinger bands chart in Figure 1. Note how the dual CCI crossovers occur at the critical points 1 through 7, indicated on the Bollinger bands price chart. Each of these crossovers could have been taken as signals to trade the OEX options market.

If we were using the criteria for trading the CCI that I described in my June article on cyclical channel analysis, then only point 4 would have qualified as a trading signal, because it was the only time that the CCI became overbought. Using the *dual* CCI along with Bollinger bands would have unequivocally given the timing signals required to successfully trade every short-term move of the OEX market in this period.

The CCI and Bollinger bands are often considered to be colinear, and thus the CCI is considered an unsuitable timing tool to use with Bollinger bands. Strictly speaking, Bollinger bands and the CCI are not actually colinear. Bollinger bands relate price to the moving average in order to establish the statistical band of variance, while the CCI relates price difference to the mean deviation of price change. It seems then that the CCI might be the perfect complementary tool for monitoring when prices reach the outer Bollinger bands. The probability that prices will exceed the Bollinger bands in a given direction is less than 3%, and the CCI provides a 68% probability that, regardless of price relationship to Bollinger bands, when the CCI trendline is violated, that signals the most recent trend has ended. Because the CCI is a sensitive indicator that closely tracks every nuance of price change, it tends to whipsaw often. By ignoring potential CCI signals except when prices are at Bollinger bands extremes, the decision of whether or not to trade on CCI signals becomes much less agonizing.

OPTION TRADING STRATEGIES

Future price, the direction of future price changes and the time it will take for these changes to occur are assessments that need to be made accurately to successfully trade options. Initially, the overall trend must be identified and the trader must assume that the trend will continue until proved otherwise. After that, one of several buying strategies can be followed, depending on the situation.

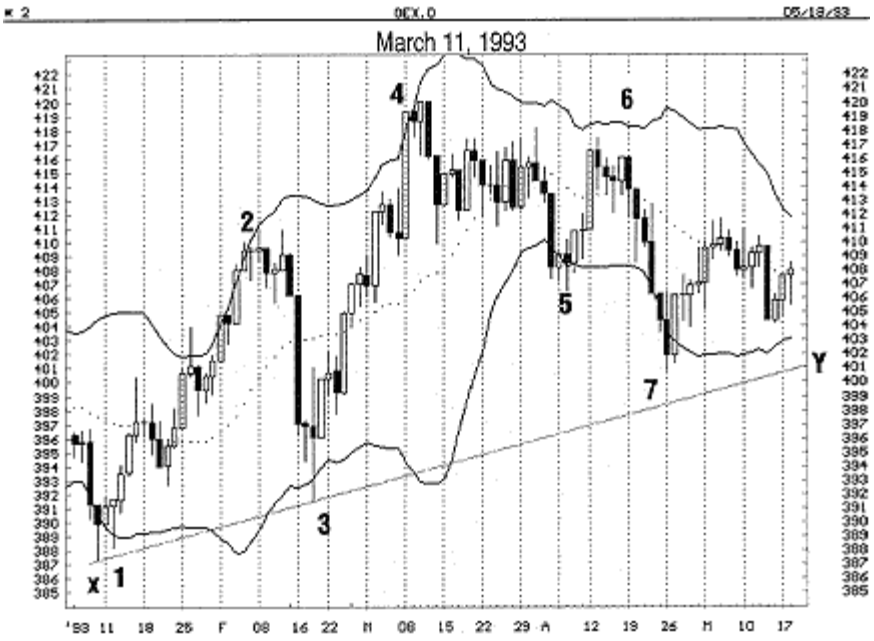


FIGURE 1: DAILY CANDLESTICK, OEX WITH BOLLINGER BANDS. Figure 1 is a daily candlestick chart of the OEX since its low on January 8, 1993, along with a 20-day moving average of price and Bollinger bands plotted about this average. Over time, price traverses the range of two standard deviations about the average. From points 1 through 4, the OEX was in a bull market despite the deep retracement to point 3. Since the March 1993 top at point 4, the market has been in a long, relatively narrow trading range and the Bollinger bands have narrowed considerably. Despite the lower lows since the March 1993 top (points 5 and 7), the price trendline (XY) is intact and directed upward, so we may consider the trend to be up.

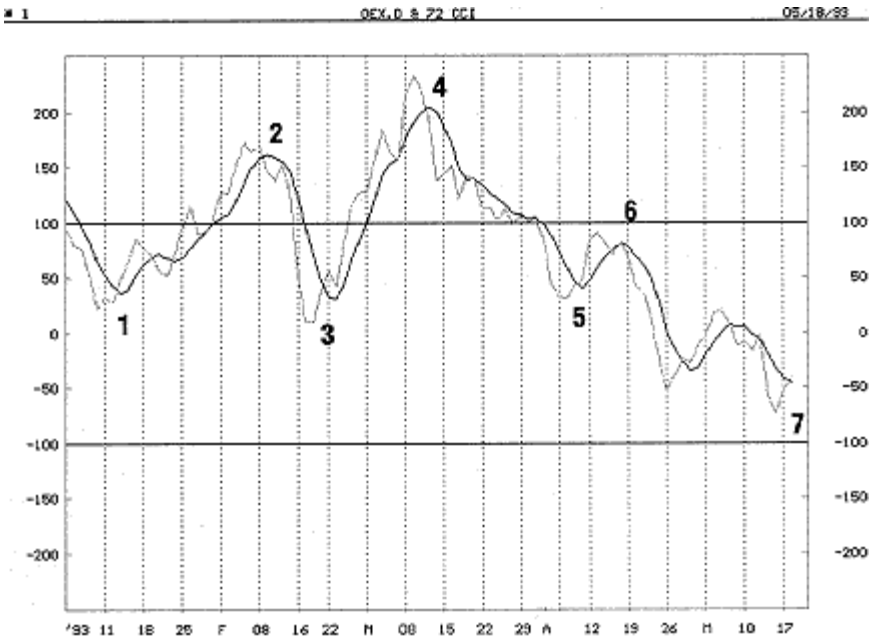


FIGURE 2: 72 DAY CCI AND A 5-DAY SMOOTHED VERSION. Figure 2 shows a 72 day CCI and a five-day smoothed version of the 72 day CCI of the OEX for the same period as the Bollinger bands chart in Figure 1. Note how the dual CCI crossovers occur at the critical points 1 through 7, indicated on the Bollinger bands price chart. Each of these crossovers could have been taken as signals to trade the OEX options market.

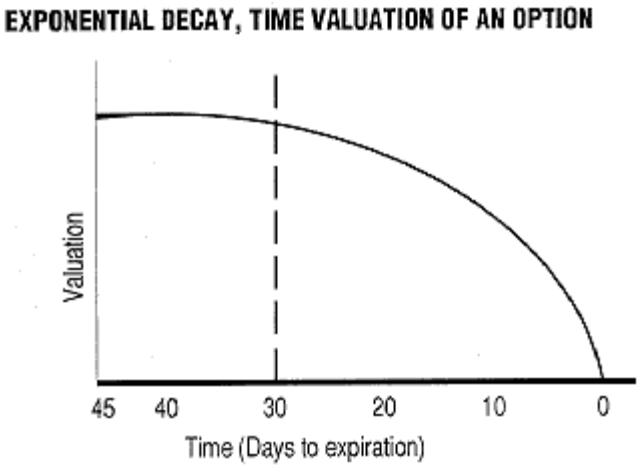
"Junk bonds!"

When the Bollinger bands show a high probability that a correction is terminating and the dual CCI timing signal has confirmed this likelihood, then the trader buys the appropriate option; for example, if a bull market correction is terminating, the trader would buy a call, or if a bear market correction were ending, the trader would buy the put. When the Bollinger bands show a high probability that a trend is about to end and a correction is at hand, a confirming dual CCI signal should prompt the trader to close out the long option position currently held and write (sell) the appropriate option. For example, if a bull move in a bull market is ending, the trader would close out the long call position and write a call; if a bear market move in a bear market is ending, the trader would close out the long put position and write a put. Opening and closing positions on dual CCI signals assures the trader of the most favorable option prices, because the dual CCI signals are early and positions taken will be of a contrarian nature.

Bollinger bands and an assessment of the current trend alert the trader to probable change immediately ahead and the dual CCI serves to confirm predictions of price change with specific entry and exit signals; the only remaining conceptual decision is that of time — that is, choosing the expiration date of the option selected to trade. For this decision, neither Bollinger bands nor the CCI offers much help. Having chosen 20 days for the statistical analysis of price variance from the moving average means that a 20-day trading cycle is the cycle of choice. Thus, the next cyclical trading low to look for should occur about 20 days from the last significant price low. Furthermore, if when the recent, interim price high since the last cyclical low occurred is known, the number of days until the next cyclical low can be calculated relatively easily. It would be judicious to add at least 30 days to this time expectation when choosing the option expiration date, so that the projected price change could occur on the *flat* part of the time decay curve of the option.

The time decay curve of the option's time value — not the option's *total* value — is illustrated in Figure 3. The time decay would be the same for the time value of a call or put. The time decay proceeds slowly until about 30 days before expiration, and then it rapidly (and exponentially) declines to zero at expiration. Common sense dictates that the trader should position a trade to the left — that is, on the *flat* part — of the time decay curve. The option will cost more at this point, but what's being bought here is time — a valuable commodity.

After price predictions are made based on an analysis of the Bollinger bands and dual CCI, next, these predictions should be allowed to unfold. So the trader buys or goes long the option with at least six weeks to expiration. If the trader were writing or going short the option, then we would want the shortest



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possible time to expiration. However, if the time to expiration is too short, say less than 30 days, then the premium is often too small to justify the risk. The least risky and most rewarding options to write are usually those with two months or so to expiration.

Choosing the option's strike price is another component of the equation that is not directly addressed by Bollinger bands or the CCI. Once again, a common sense understanding of options and their intrinsic value is necessary. A good general rule is to buy the option that is just in-the-money or at-the-money, so that each unit move in the price of the underlying asset is accompanied by a unit move in the price of the option (in the correct direction, of course). When writing options, the best strike price is out-of-the-money but closest to being at-the-money.

CALCULATING BOLLINGER BANDS

	A	B	C	D	E	F	G	H	I	J
1	Date	High	Low	Close	Typical Price					
2	910924	3043.38	2995.97	2995.97	3011.77					
3	910925	3048.52	3004.92	3004.92	3019.45					
4	910926	3040.70	2996.87	2996.87	3011.48					
5	910927	3040.70	2989.49	2989.49	3006.56					
6	910930	3032.87	2982.78	2982.78	2999.48					
7	911001	3043.60	3002.46	3018.34	3021.47					
8	911002	3040.25	2992.40	3012.52	3015.06					
9	911003	3021.24	2972.50	2984.79	2992.84					
10	911004	3007.16	2956.17	2961.76	2975.03					
11	911007	2973.17	2926.21	2942.75	2947.38					
12	911008	2983.68	2927.77	2963.77	2958.41					
13	911009	2984.79	2925.54	2946.33	2952.22					
14	911010	2985.47	2930.23	2976.52	2964.07					
15	911011	3000.89	2957.51	2983.68	2980.69					
16	911014	3026.39	2975.85	3019.45	3007.23					
17	911015	3057.69	3000.22	3041.37	3033.09					
18	911016	3082.29	3016.10	3061.72	3053.37					
19	911017	3077.15	3027.06	3053.00	3052.40			Upper	Middle	Lower
20	911018	3089.45	3045.62	3077.15	3070.74	20 day Average	Standard Deviation	Bollinger Band	Bollinger Band	Bollinger Band
21	911021	3085.20	3042.49	3060.38	3062.69	3006.77	35.54	3077.85	3006.77	2935.70
22	911022	3084.53	3020.57	3039.80	3048.30	3008.60	36.67	3081.94	3008.60	2935.26
23	911023	3065.52	3015.21	3040.92	3040.55	3009.65	37.26	3084.18	3009.65	2935.12
24	911024	3047.63	2991.73	3016.32	3018.56	3010.01	37.31	3084.63	3010.01	2935.38
25	911025	3034.44	2983.01	3004.92	3007.46	3010.05	37.31	3084.67	3010.05	2935.43
26	911028	3055.23	3001.57	3045.62	3034.14	3011.79	37.58	3086.95	3011.79	2936.62
27	911029	3077.82	3020.13	3061.94	3053.30	3013.38	38.62	3090.61	3013.38	2936.14
28	911030	3090.12	3038.24	3071.78	3066.71	3015.96	40.33	3096.63	3015.96	2935.29
29	911031	3091.01	3045.62	3069.10	3068.58	3019.75	41.52	3102.79	3019.75	2936.70
30	911101	3091.91	3031.75	3056.35	=(B30+C30+D30)/3	=AVERAGE(E11:E30)	=STDEVP(E11:E30)	=F30+(2*G30)	=F30	=F30-(2*G30)

CONCLUSION

While Bollinger bands offer objective evidence of likely price reversals, cyclical channel analysis offers only subjective analysis. Also, using the CCI in conjunction with CCA only allows for trades initiated at CCA's outer channels and only with the presence of divergent and overbought or oversold CCI signals. The CCA CCI system does not address CCI trendline breaks that occur between the overbought or oversold parameters. Trend corrections frequently end without the CCI becoming overbought or oversold at which point the next phase of the trend can quickly develop, leaving the trader on the sidelines.

However, using a dual CCI in conjunction with Bollinger bands avoids the conundrum caused by using cyclical channel analysis because Bollinger bands constantly expand and contract with price fluctuations

— the veritable systolic and diastolic flow of the market's life blood.

A dual CCI used in conjunction with Bollinger bands is a leading or, at the very least, coincident indicator that ensures a high probability of timing the anticipated price reversal correctly. When the trader has a common sense understanding of option valuation and the time decay of the time premium, these two indicators, considered together with the overall price trend, can direct the trader to buy or sell the appropriate option at the most favorable time with the most realistic expiration.

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