Trading with the VIX Put/Call Ratio

There are several put/call ratios, and they all have different characteristics. Find out how the VIX P/C Ratio can signal trade opportunities in the stock market.

BY RUSSELL RHOADS

A put/call ratio measures the number of put options traded vs. the number of call options traded in a day. The ratio is most commonly viewed as a gauge of demand for bearish protection against a downturn in equities. On days put/call ratio is above 1.00, traders and investors are buying more put options than call options — a possible indication market participants are more focused on market weakness. On days a put/call ratio is below 1.00, it means call option volume has exceeded put option volume and the market is buying calls in anticipation of higher stock prices in the near term.

The Chicago Board Options Exchange (CBOE) publishes daily data for several put/call ratios, shown in Table 1: total exchange volume, index option volume, equity option volume, S&P 500 (SPX) index option volume, and VIX index option volume — all of which are tracked on the exchange's website (www.cboe.com) and have downloadable data in spreadsheet form.

The common use of the different option contracts that form the basis of these Put/Call Ratios varies a bit. Equity options tend to have more balanced put and call volume while SPX options consistently have more trading in puts than calls; VIX option volume depends on the specific market events occurring at a given time. As a result, the put/call ratios based on these options exhibit unique characteristics.

TABLE 1: PUT/CALL RATIOS

Ratio	Based on
CBOE Total Exchange Put/Call Ratio	*Volume of all puts and calls*
CBOE Index Put/Call Ratio	*Volume of stock index puts and calls*
CBOE Equity Put/Call Ratio	*Volume of individual equity puts and calls*
CBOE Volatility Index (VIX) Put/Call Ratio	*Volume of VIX puts and calls*
CBOE S&P 500 (SPX) Put/Call Ratio	*Volume of S&P 500 puts and calls*

The Chicago Board Options Exchange (CBOE) calculates and publishes several put/call ratios on a daily basis.

Comparing put/call ratios

Figure 1 shows the Equity Put/Call Ratio for the third quarter of 2011 along with the S&P 500 index. The put option volume outweighs the call option volume in only a couple of instances; the spikes above 1.00 in August occurred on very bearish days in the stock market and mark the two roughly equal troughs near the bottom of the summer sell-off. Most of the time, there is more volume in calls than in puts in

equity options. But when there is heightened concern about protecting against a downside move in individual stocks, there is usually an increase in put volume relative to call volume and the Equity Put/Call Ratio rises.

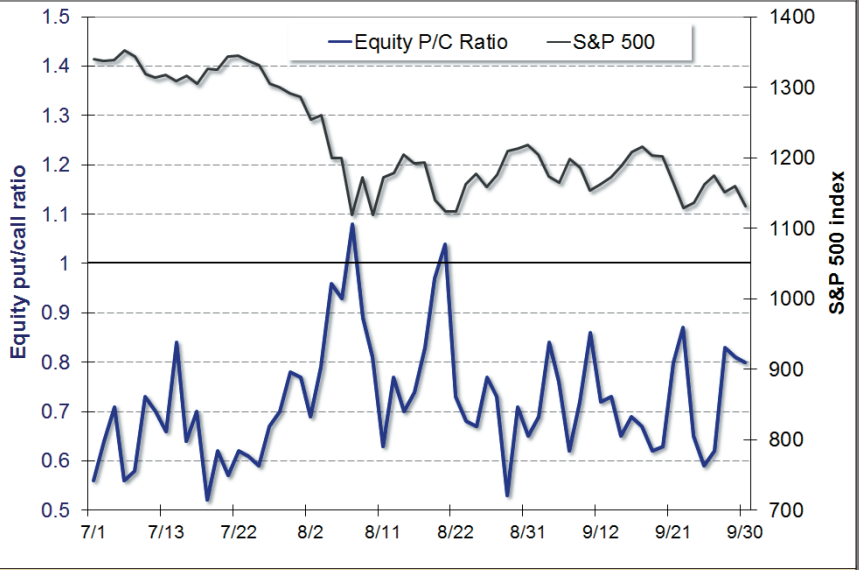
Figure 2 shows the SPX Put/Call Ratio for the same time period. In this case the put/call ratio line never dips below 1.00, which means during the third quarter there was not a single day when S&P 500 call volume exceeded put volume. Although this characteristic is in stark contrast to the Equity Put/Call Ratio in Figure 1, it is fairly typical in the SPX Put/Call Ratio because institutions often buy SPX put options to hedge their equity portfolios. However, much like the Equity Put/Call Ratio, this ratio moves to higher levels when there are increased concerns a bear market might be on the horizon.

Figure 3 shows the VIX Put/Call Ratio. Here, the line is mostly below 1.00 but formed a very large spike toward the end of the quarter, when put volume exceeded call volume by more than three to one. It is the nature of the VIX to spike during times of market uncertainty and then revert to its mean during more stable equity market conditions. The trading activity in VIX options reflects this recurring pattern, where demand for puts spikes relative to calls when the overall stock market sells off.

Figure 4 compares the S&P 500 and VIX during the third quarter. Notice there is basically an inverse relationship between daily price changes in the S&P 500 index and VIX. In fact, the VIX closes down on approximately 75 percent of the days the S&P 500 closes higher than the previous day; the VIX closes higher on around 75 percent of the days the S&P 500 index closes lower. Between Jan. 1,

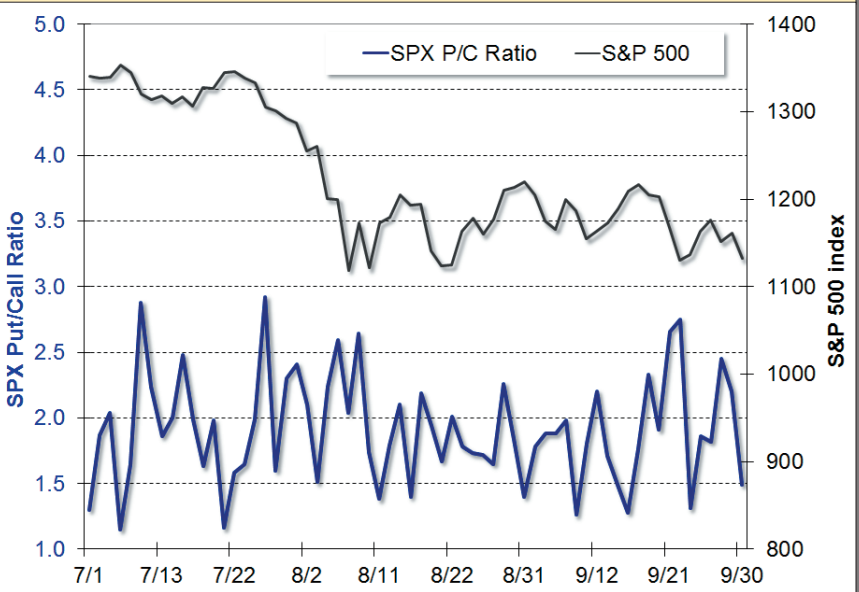
continued on p. 24

FIGURE 1: EQUITY PUT/CALL RATIO



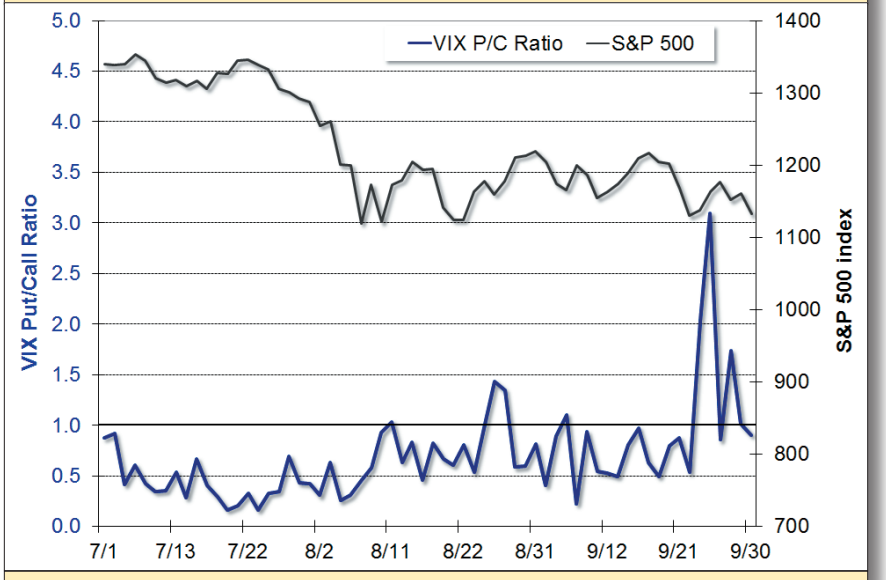
The Equity Put/Call Ratio (bottom) pushed above 1.00 (indicating higher put volume than call volume) only twice during the third quarter.
Source: www.cboe.com

FIGURE 2: SPX PUT/CALL RATIO



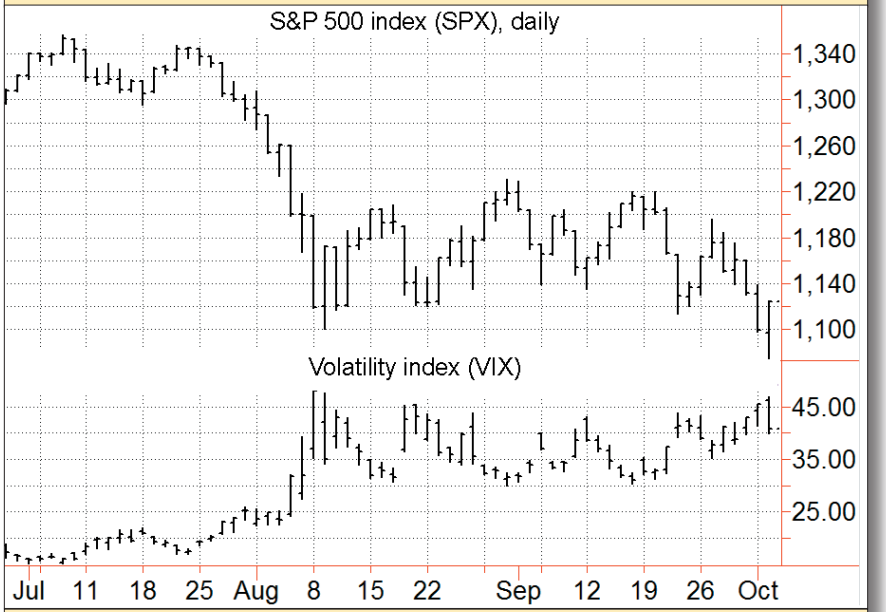
Because institutions often buy SPX put options to hedge their equity portfolios, the SPX Put/Call Ratio is typically above 1.00
Data source: www.cboe.com

FIGURE 3: VIX PUT/CALL RATIO



The VIX Put/Call Ratio is mostly below 1.00, but it formed a big spike toward the end of the third quarter.
Data source: www.cboe.com

FIGURE 4: S&P 500 AND VIX



There is a general inverse relationship between daily price changes in the S&P 500 index and VIX.
Source: TradeStation

2000 and Sept. 30, 2011, the S&P 500 closed down by 2.5 percent or more exactly 100 times. The VIX rallied on 99 of those days, and its move was greater on a percentage basis than the drop in the S&P 500 94 times: The average S&P 500 drop on those 100 days was 3.74 percent, while the average gain in the VIX index was 14.7 percent.

VIX options commenced trading in 2006, and the daily volume in these contracts often approaches 1,000,000. Unlike any other put/call ratio, the VIX Put/Call Ratio spikes when there is excessive bullish sentiment. More VIX put volume than call volume indicates market participants are expecting a lower VIX, which implies a rebound in the stock market.

The point behind taking a look at what the VIX does on truly bearish days in the stock market is to highlight what VIX option traders would do when concerned about the future direction of the market: They would purchase call options. Therefore, increased call volume occurs when traders believe there is a reason to be concerned about the market turning bearish. This sort of bearish move would also need to occur in the form of a dramatic drop in the stock market for the VIX react with a spike to the upside.

Let's look at how this information can be incorporated in a trading approach.

VIX Put/Call Ratio strategies

Applying the VIX Put/Call Ratio as a short-term buy signal for the stock market produces some interesting results. We'll look at two simple methods, tested using data from Jan. 1, 2007 to Sept. 30, 2011, that go long the S&P 500 based on the closing VIX Put/Call Ratio value.

The first approach involves taking a long position in the S&P 500 for one day when VIX put option volume exceeds VIX call option volume — that is, the VIX Put/Call Ratio closes above 1.00. When the put volume exceeds the call volume it indicates traders may

be expecting the VIX to trade lower, which implies expectation the stock market is going to move higher over the near term.

There have been 1,197 trading days between Jan. 1, 2007 and Sept. 30, 2011, and the VIX Put/Call Ratio has closed above 1.00 on 166 of them. If a trader bought the S&P 500 on the close of days the ratio is above 1.00 and held until the next day's close they would have profited on just more than 56 percent of trading days. Overall, the S&P 500 closed higher on about 54 percent of all days in the period.

However, more impressive than the slight improvement in winning percentage is the net gain from the system relative to simply being long the S&P 500 index. Over the test period the S&P 500 lost 286.88 points while this simple signal gained 235.94 points. Figure 5 compares the S&P 500 (blue) to a long position based on the VIX Put/Call Ratio long signal (red).

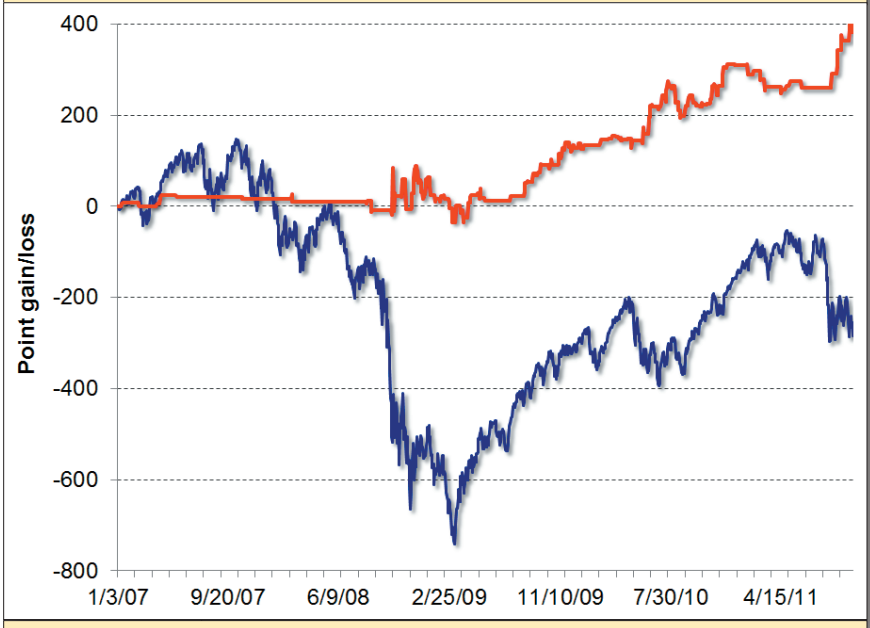
The second approach is a little more complex. If within the previous three days the VIX Put/Call Ratio has closed below 1.00 one day and then closed above 1.00 the following day, go long the S&P 500 for a one-day hold. There are periods where this type of activity has produced multiple (overlapping) signals — that is, times when a signal is triggered when a previous long signal is still in effect. When this occurs, the second signal is not acted upon; only the long position from the first signal continues to be maintained.

This approach improves a bit on the first method's performance, returning 382.90 S&P 500 points during the analysis period. Figure 6 shows the performance of the S&P 500 vs. this more complex trade screen.

Although neither of these approaches would work as a pure, standalone system, their positive results suggest the VIX Put/Call Ratio is a useful indicator for identifying trade opportunities. ◆

For information on the author, see p. 8.

FIGURE 5: VIX P/C RATIO SIGNAL 1



Although the S&P 500 (blue) lost 286.88 points during the analysis period, the first VIX Put/Call Ratio signal (red) gained 235.94 points.
Data source: www.cboe.com

FIGURE 6: VIX P/C RATIO SIGNAL 2

The second VIX Put/Call Ratio approach returned 382.90 S&P 500 points during the analysis period.
Data source: www.cboe.com