

## Do Option Sellers Have a Trading Edge?

by John Summa, CTA, PhD, Founder of OptionsNerd.com

(Contact Author | Biography)

While there are certainly many viable options-buying strategies available to traders, options expiration data I obtained from the CME covering a three-year period suggests that buyers are fighting against the odds. Based on data obtained from the CME, I analyzed five major CME option markets – the S&P 500, eurodollars, Japanese yen, live cattle and Nasdaq 100 – and discovered that three out of every four options expired worthless. In fact, of put options alone, 82.6% expired worthless for these five markets.

This study analyzes data compiled by the Chicago Mercantile Exchange (CME) for a special options report prepared for this my book, Options on Futures: New Trading Strategies (Wiley & Sons), co-authored by Jonathan Lubow, vice-president of Trader's Edge, Inc., a futures and options brokerage based in Madison, NJ.

Three key patterns emerge from this study: (1) on average, three out of every four options held to expiration end up worthless; (2) the share of puts and calls that expired worthless is influenced by the primary trend of the underlying; and (3) option sellers still come out ahead even when the seller is going against the trend.

### CME Data

Based on a CME study of expiring and exercised options covering a period of three years (1997, 1998 and 1999), an average of 76.5% of all options held to expiration at the Chicago Mercantile Exchange expired worthless (out of the money). This average remained consistent for the three-year period: 76.3%, 75.8% and 77.5% respectively, as shown in figure 1. From this general level, therefore, we can conclude that for every option exercised in the money at expiration, there were three options contracts that expired out of the money and thus worthless, meaning option sellers had better odds than option buyers for positions held until expiration.

<b>CME Grand Totals</b>	
<b>% CME Exercised &amp; Expired Worthless Options</b>	
<b>Year</b>	<b>% Expired Worthless</b>
1997	76.3%
1998	75.8%
1999	77.5%
<b>3-Year Avg.</b>	<b>76.5%</b>

Figure 1. – Source: CME Exercised/Expired Recap For Expired Contract Report

We present the data as options exercised versus those expiring worthless. Figure 2 contains the actual numbers, showing that there were 20,003,138 expired (worthless) options and 6,131,438 exercised (in the money) options. Futures options that are in the money at expiration are automatically exercised. Therefore, we can derive the total of expired worthless options by subtracting those exercised from total options held to expiration. When we take a closer look at the data, we will be able to spot certain patterns, such as how a trend bias in the underlying affects the share of call options versus put options expiring worthless. Clearly, however, the overall pattern is that most options expired worthless.

<b>CME Grand Totals</b>		
<b>Total CME Exercised &amp; Expired Worthless Call and Put Options</b>		
<b>Year</b>	<b>Exercised</b>	<b>% Expired Worthless</b>
1997	2,082,282	6,752,321
1998	2,230,786	6,973,337
1999	1,818,370	6,277,480
<b>Grand Total</b>	<b>6,131,438</b>	<b>20,003,138</b>

Figure 2. – Source: CME Exercised/Expired Recap For Expired Contract Report

The three-year averages of exercised options (in the money) versus options expiring worthless (out of the money) for the markets examined below confirm what the overall findings indicate: a bias in favor of option sellers. In figure 3, the totals for exercised (in the money) and worthless-expired options for the S&P 500, NASDAQ 100, eurodollar, Japanese yen and live cattle are presented. For both puts and calls traded in each of these markets, options expiring worthless outnumbered those expiring in the money.

For example, if we take S&P 500 stock index futures options, a total of 2,739,573 put options expired worthless compared with just 177,741 that expired in the money.

<b>Total Exercised/Expired Options Contracts (1997-1999)</b>				
<b>Futures Contact</b>	<b>Total Exercised Call Options</b>	<b>Total Exercised Put Options</b>	<b>Total Expired Call Options</b>	<b>Total Expired Put Options</b>
S&P	587,729	177,741	843,414	2,739,573
NASDAQ 100	15,541	5,660	65,948	111,490
Eurodollar	1,378,928	1,041,841	4,301,125	4,178,247
Japanese Yen	160,132	255,606	668,265	530,654
Live Cattle	47,576	50,311	172,378	162,319

Figure 3. – Source: CME Exercised/Expired Recap For Expired Contract Report

As for call options, a primary bull market trend helped buyers, who saw 843,414 call options expire worthless compared with 587,729 expiring in the money – clearly a much better performance by option buyers than put buyers. Eurodollars, meanwhile, had 4,178,247 put options expiring worthless, while 1,041,841 expired in the money. Eurodollar call buyers, however, did not do much better. A total of 4,301,125 call options expired worthless while just 1,378,928 ended up in the money, despite a favorable (i.e. bullish) trend. As the rest of the data in this study shows, even when trading with the primary trend, most buyers still ended up losing on positions held until expiration.

<b>% Exercised/Expired Options Contracts (1997-1999)</b>				
<b>Futures Contact</b>	<b>% Exercised Call Options</b>	<b>% Exercised Put Options</b>	<b>% Expired Call Options</b>	<b>% Expired Put Options</b>
S&P	41.1%	6.1%	58.9%	93.9%
NASDAQ 100	19.1%	4.8%	80.9%	95.2%
Eurodollar	24.3%	20.0%	75.7%	80.0%
Japanese Yen	19.3%	32.5%	80.7%	67.5%
Live Cattle	21.6%	23.7%	78.4%	76.3%
<b>Average</b>	<b>25.0%</b>	<b>17.4%</b>	<b>74.9%</b>	<b>82.6%</b>

Figure 4. – Source: CME Exercised/Expired Recap For Expired Contract Report

Figure 4 presents the data in terms of percentages, which makes it a little easier to make comparisons. For the group as a whole, put options expiring worthless for the entire group had the highest percentage, with 82.6% expiring out of the money. The percentage of call options expiring worthless, meanwhile, came to 74.9%. The put options percentage expiring worthless came in above the average of the entire study cited earlier (of all the CME futures options, 76.5% expired worthless) because the stock index options on futures (Nasdaq 100 and S&P 500) had very large numbers of put options expiring worthless, 95.2% and 93.9% respectively.

This bias in favor of put sellers can be attributed to the strong bullish bias of the stock indexes during this period, despite some sharp but short-lived market declines. Data for 2001-2003, however, may show a shift toward more calls expiring worthless, reflecting the change to a primary bear market trend since early 2000.

### Conclusion

Data presented in this study comes from a three-year report conducted by the CME of all options on futures traded on the exchange. While not the entire story, the data suggests overall that option sellers have an advantage in the form of a bias towards options expiring out of the money (worthless). We show that if the option seller is trading with the trend of the underlying, this advantage increases substantially. Yet if the seller is wrong about the trend, this does not dramatically change the probability of success. On the whole, the buyer, therefore, appears to face a decided disadvantage relative to the seller.

Even though we suggest that the data understates the case for selling because it does not tell us how many of the options that expired in the money were winning rather than losing trades, the data should say enough to encourage you to think of developing selling strategies as your primary approach to trading options. Having said that, however, we should emphasize that selling strategies can involve substantial risk (buyers, by definition, face limited losses), so it is important to practice strict money management and to trade only with risk capital when deploying selling strategies.

*There is risk of loss trading futures and options. Past performance does not guarantee future results. Trade with risk capital only.*