



Why Black-Scholes Is Better Than We Think

Trading Options Without Technical Analysis?

AN INTERVIEW WITH Donald A. Montanaro CEO, TradeKing

EXPIRING MONTHLY THE OPTION TRADERS JOURNAL

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About the **Expiring Monthly Team**

Bill Luby



Bill is a private investor whose research and trading interests focus on volatility, market sentiment, technical analysis, and ETFs. His work has been has been quoted in the Wall Street Journal, Financial Times, Barron's and other publications. A contributor to Barron's and Minyanville, Bill also authors the VIX and More blog and an investment newsletter from just north of San Francisco.

He has been trading options since 1998.

His first book, Trading with the VIX, is scheduled to be published by John Wiley & Sons in 2011.

Prior to becoming a full-time investor, Bill was a business strategy consultant for two decades and advised clients across a broad range of industries on issues such as strategy formulation, strategy implementation, and metrics. When not trading or blogging, he can often be found running, hiking, and kayaking in Northern California.

Bill has a BA from Stanford University and an MBA from Carnegie-Mellon University.

Jared Woodard



Jared is the principal of Condor Options. With over a decade of experience trading options, equities, and futures, he publishes the Condor Options newsletter (iron condors) and associated blog.

Jared has been quoted in various media outlets including The Wall Street Journal, Bloomberg, Financial Times Alphaville, and The Chicago Sun-Times.

In 2008, he was profiled as a top options mentor in Stocks, Futures, and Options Magazine. He is also an associate member of the National Futures Association and registered principal of Clinamen Financial Group LLC, a commodity trading advisor.

Jared has master's degrees from Fordham University and the University of Edinburgh.

Mark Sebastian



Mark is a professional option trader and option mentor. He graduated from Villanova University in 2001 with a degree in finance. He was hired into an option trader training program by Group 1 Trading. He spent two years in New York trading options on the American Stock Exchange before moving back to Chicago to trade SPX and DJX options For the next five years, he

traded a variety of option products successfully, both on and off the CBOE floor.

In December 2008 he started working as a mentor at Sheridan Option Mentoring. Currently, Mark writes a daily blog on all things option trading at Option911.com and works part time as risk manager for a hedge fund. In March 2010 he became Director of Education for a new education firm OptionPit.com.

Mark Wolfinger



Mark grew up in Brooklyn and holds a BS degree from Brooklyn College and a PhD (chemistry) from Northwestern University. After working as a research chemist for Monsanto Company, in December 1976 he packed his belongings, left a career as a research chemist behind, and headed to Chicago to become a market maker on the trading floor of the Chicago

Board Options Exchange (CBOE).

Over the next 23 years, he worked primarily as a market maker, and also held a variety of positions in the industry.

After leaving the CBOE (2000), he became an options educator and stresses conservative methods, as detailed in his newest book, *The Rookie's Guide to Options*.

He currently resides in Evanston IL with his life-partner, Penny.



Editor's **Notes**

Bill Luby



This month's options expiration cycle was a relatively quiet one on the equity front, but quite a roller coaster ride in commodities and in other asset classes. There are some signs that equities may be topping and bulls are becoming fatigued as the financial markets near some sort of inflection point. Of course, everyone is also hearing "Sell in May . . ." in the back of their head too.

The May edition *Expiring Monthly* is intended partly as an antidote for the current state of the markets. In it Mark Sebastian authors the feature article on the subject of understanding order flow. His treatment of the subject includes an analysis of the impact of large trades on implied volatility and skew and will conclude in a second installment in the June issue.

This month Mark also interviews TradeKing Chairman and CEO Donald Montanaro in a discussion that covers the history of the bricks and mortar discount brokerage business up to the present incarnation of online options trading.

Elsewhere, Jared Woodard and I delve into subjects related to hedging. Jared examines the robustness of Black-Scholes in the context of delta hedging, while I look at an approach to constructing customized partial portfolio hedges. In his monthly column for new traders, Mark Wolfinger talks about the benefits of selling in-the-money options as a means of reducing risk and in Wolf Against the World, Mark and I debate the merits of using technical analysis to trade options.

In two of our favorite features, our Floor Stories column is penned by Mark Sebastian, who recalls the pervasive pranksterism on the floor of the CBOE and how it made him a target, while the EM team returns to answer reader questions in the Ask the Xperts segment.

Last but not least, in his Back Page piece, Jared Woodard invokes some of the work of Thomas Bayes to discuss elements of probability, arbitrage, volatility risk premium and rational decision-making.

As always, readers are encouraged to send questions and comments to editor@expiringmonthly.com.

Have a good expiration cycle,

Bill Luby Contributing Editor







The Expiring Monthly Editors

Mark,

I screwed up in classic rookie style. Bought calls, and everything is going south. I'm seeking advice on how to recover. Just want to know if I should take my loss. Can I buy puts or sell puts/calls?

Here are my big mistakes: Bought XXX JUNE \$160 calls at \$2.20 and bought XXX JUNE \$350 calls \$13.30.

Losing big on the first, and the other is a seesaw. Should I bail or can this be saved? Appreciate any help.

—J

Hello J,

Please do not consider every trade that loses money to be a mistake. Good trades do not always work as expected.

It is *possible* to turn around any position. Your first decision is whether these positions are good enough to justify taking on extra risk.

It appears that your first trade was the purchase of out-of-the-money-calls. As a general rule, I advise everyone to avoid that play. Exception: If you have a trade history that *proves* you know when stocks are moving higher/lower and *when* that move will occur. Otherwise, forget OTM options.

Please do not buy OTM puts in an attempt to salvage the trade. That would give you an OTM strangle with just a chance for a big win. But the most likely result is watching both options move toward being worthless. That play is a long shot.

Bailing now is a good idea unless you want to own these specific options currently. Later, you can make a trade with a better chance of success.

Have you considered selling OTM put spreads instead of buying calls? Have you considered buying call spreads instead of calls or low-cost butterfly spreads (not ATM)? Buying options is a high-risk strategy. Losses may be limited, but they often represent 100% of the investment.

Your goal is to make money from right this minute into the future. Bailing is one reasonable choice. If you truly want to be bullish now, then consider consolidating your positions by selling your calls. Use the proceeds to buy fewer calls with lower strikes.

—Mark W.

[Due to the urgency of the request, I sent a reply immediately via e-mail.]

.....

Jared,

Sometimes you put on delta hedges using long or short combos instead of buying or selling the stock outright. Why do you do this, and how do you choose the strike for the synthetic position?

— S. Cates

S. Cates,

If you are long 100 deltas in a position and want to flatten that exposure, you could sell 100 deltas of the underlying—100 shares of stock or if it's an option position on the E-mini S&P 500 futures, two ES contracts for example or you could use options to accomplish the same thing.

For equity options, buying an at-the-money (ATM) put and selling an ATM call will make you synthetically short 100 shares of stock, meaning that the profit and loss of the synthetic option position will be the same as the profit and loss of a short stock position.

The reason we sometimes use synthetic long or short positions instead of trading the underlying asset is that it allows us to use our margin more effectively. This is especially helpful for equity option traders using Reg T margin.

Sometimes, the cost of flipping in and out of many hundreds of shares of stock can be prohibitive for traders, and synthetic positions reduce that burden somewhat.





If you trade the Russell 2000 Index (RUT) or S&P 500 Index (SPX) options and cannot trade futures, synthetic long and short positions are helpful.

In terms of strike selection, there is really no magic to it. I usually just opt for the ATM strike. If you prefer not to have trades overlapping with legs at the same strike, pick the closest ATM strike that does not get in your way.

—Jared

Mark, When calculating my return, should I use return on capital or return on investment?

Chris

Chris,

l would actually say both. It is important to understand how much a trade returned relative to how much you actually put at risk. For this reason ROI is important to calculate.

However, if you are trying to figure out a daily, monthly or yearly return, the total amount of capital that you have in your trading account whether you used it or not needs to be considered. This is why I tell traders to use return on capital to calculate annual and monthly returns.

This is a key concept to understand because there are many snake oil salesmen promising 10% ROI that are presenting it as return on capital. There is a big difference.

—Mark S.



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Learning a New Strategy: The Details Matter

Mark D Wolfinger

Once the newbie options trader gets over the idea that he or she can make a fortune by buying calls or puts, the trader understands the advantages of using option strategies to hedge risk and increase the probabilities of making some money from any trade.

It is easy to discover the definition of a strategy and get excited about the prospects. Many experienced traders recall the time when they thought that writing covered calls was an amazing way to print money. They looked for stocks to buy and happily chose a call to write. Eventually they learned that these amazing rewards do not come without corresponding risk.

The purpose of this month's offering is to encourage new traders to do more than merely understand the basic idea of a strategy before making trades with real cash. You can use some basic ideas as guidelines for trading, and these help you retain a sense of reality. They give you some perspective on how to make better, less-risky trades.

2 Sides to Consider

Every options trade involves selecting the option to buy or sell. Often little guidance is available on how to make that selection. Here is an example: Covered call writers tend to sell out-of-the-money (OTM) options (calls with a strike price above the stock price). It seems to be a natural, obvious choice made without much thought. After all, when buying a stock, an investor is bullish and, therefore, should seek to make money from an increase in the price of the shares.

Anyone can Slap on an options trade. But to have a better chance to find success, you want to understand your alternatives and make a good decision.

The point that is overlooked is that not all stocks rise just because the buyer is bullish. The prudent investor may prefer to adopt a more conservative plan with an increased chance to earn money—even if that gain is limited—rather than go after the large win.

How does this apply to covered call writing? Selling OTM calls is riskier than writing in-the-money (ITM) calls.



There is a greater probability that the stock will decline below the break even point for the trade when the call has a smaller premium. It is a tradeoff: more profit potential and greater risk of loss or reduced profit potential accompanied by a significantly greater chance of earning that profit.

The point is that the newbie is probably unaware of the idea of writing ITM calls. It just seems so natural to sell those OTM calls and seek the big rewards.

Know Your Alternatives

Whenever I teach a class on this strategy, I emphasize that a real alternative exists and that understanding how writing OTM or ITM (and at-the-money) options represents an important part of the trade decision. It is not a strategy in which one randomly picks a call to sell.

When learning to sell credit spreads (including the iron condor, which involves both a call and put credit spread), emphasis is placed on explaining that the options should be OTM and what must happen to the price of the underlying asset for a profit to be earned. But in learning to adopt the strategy, little emphasis is placed on teaching the beginner how to choose the specific spread to trade. *(continued on page 29)*





Why Black-Scholes Is **Better Than We Think**

Jared Woodard

Every options trader knows about or at least of the Black-Scholes-Merton (BSM) pricing model. Because it is the oldest formalized pricing model and only the first of many, some traders regard it as outdated and inferior. Perhaps it is a victim of the familiarity that breeds contempt.

In Why We Have Never Used the Black-Scholes-Merton Option Pricing Formula, Nassim Taleb and Espen Haug argue provocatively enough that BSM is merely a repackaged presentation of a pre-existing formula and that most traders after 1973 never bothered to use BSM in any case.

Although I will not wade into the mud of any internecine intellectual property disputes, I do want to present some reasons traders should give BSM a second look.

Be Practical

Delta hedging is an essential component of any volatility trading strategy. When straddle buyers also buy and sell the underlying asset to "scalp" the gamma in the trade, they are hedging the deltas created by that gamma to prevent the position from becoming a simple directional bet.

Any pure volatility trade will require hedging to eliminate directional price exposure, but even traders who want a mixture of volatility and price exposure will need, at times, to alter the delta bias of positions.

To hedge the delta exposure of an option position, it is necessary to have a confident estimate of that exposure. But the delta of a given option is not dictated from on high or declared by fiat. It depends upon some pricing model.

Now, although many traders do not make active use of multiple complex pricing models when finding and structuring trades, that does not mean understanding the relative merits of different models is not of practical importance.

Carol Alexander, Andreas Kaeck and Leonardo Nogueira note in a 2009 Journal of Futures Markets article that the existing literature is unclear about whether BSM deltas are more cost-effective for hedging than deltas produced by either of the two contemporary types of models for pricing options, local or stochastic volatility models:

[O]nce stochastic volatility is modeled [e.g., Heston 1993], the inclusion of jumps leads to no discernible improvement in hedging performance. It is conjectured that this is because the likelihood of a jump during the hedging period is too small, at least when the hedge



is rebalanced frequentlyDumas et. al (1998) test several parametric and semi-parametric forms of the local volatility function, and conclude that BSM deltas appear to be more reliable than any of the local volatility deltas that they tested.

This is already an interesting result, because ambiguity about the effectiveness of contemporary models (relative to BSM) should lead us to reduce whatever bias we might have had in their favor.

Put Models to the Test

To gain some clarity about how well different models actually hedge vanilla option deltas, the authors review the effectiveness of six pricing models: BSM, BSM adjusted to allow for stochastic volatility, Heston, SABR, a lognormal mixture diffusion model and the lognormal model with four stochastic parameters.

The adjusted BSM model was configured to allow for the fact that equity implied volatility tends to correlate negatively with asset prices. Both delta-hedging and delta-gammahedging strategies were tested, but I will only review results for the former.

One S&P 500 option at each strike between 0.8 and 1.2 moneyness was



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Pricing Model	Std. Dev.	R ²
SABR	1.343	0.161
BSM-adjusted	1.359	0.148
Heston	1.400	0.208
Normal mixture-adjusted	1.620	0.208
BSM	1.784	0.472
Normal mixture	2.891	0.676

sold, and the net portfolio delta was re-hedged daily.

The primary purpose of delta hedging is, again, to remove exposure to price fluctuations in the underlying asset. All of the tested models will accomplish this in a general sense. So to compare them, the authors emphasize two other metrics, the standard deviation of daily profit or loss.

The thought here is that it is intuitively better to have a smoother time series of returns, and as low a correlation as possible (R^2) between the portfolio P/L and the underlying asset returns. Table I shows these results. The results are surprising. **TABLE** The adjusted BSM model outperforms every other model on the R² criterion and has the lowest standard deviation of returns except for the SABR model.

The paper also compares model hedging error by moneyness and across several maturity buckets. BSM-adjusted performed the best at low moneyness, with SABR providing lower errors for at- and out-of-themoney options.

Similar results were obtained for hedging options with different times to expiration: SABR topped other models, with adjusted BSM a very close second.

 TABLE I
 Hedging P&L

Make Adjustments

Although the original 1973 BSM model has some well-known limitations, adjusting the basic model to allow for stochastic volatility improves it considerably.

References

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Cheating with Partial Hedges

Bill Luby

After more than two years of a surging bull market that has seen the major stock indexes more than double, it is not surprising that many investors are becoming more concerned about protecting existing profits than finding ways to increase existing account balances.

As someone who makes a living trading options, you would think that finding a way to hedge my portfolio using them ought to be second nature. In fact, I have always placed more emphasis on offense than defense, not because I underestimate the importance of risk management, but because I generally find the opportunity cost of portfolio protection to be too high.

To some, this will sound like heresy, but the truth is that I never want to pay the full price for portfolio protection, so my efforts at hedging have always emphasized finding the narrowest possible hedge for my needs and limiting the cost of that hedge as much as possible.

In a nutshell, my approach is to figure out where the best place is to cut corners and shave the odds without significantly increasing my exposure. An academic may refer to this as creating a bespoke or customized hedge. I prefer to think in lay terms of cheating the odds. With this in mind, I attempt to explain how I look at constructing custom partial hedges.

3 Approaches to Hedging

First off, I have little interest in a hedge that caps my upside potential. For this reason, I generally steer clear of collars unless I am going on a vacation and have no intention of watching the markets.

The following types of strategies have the greatest appeal to me:

- Disaster protection hedge A hedge that only pays off after a specified drawdown threshold, say 10% or 20%, similar to an insurance contract with a large deductible.
- Gap protection hedge Has all the features of a disaster protection hedge but also includes a cap. The result is that the hedge pays off only in a specified range, such as from a 10% to 20% drawdown.
- Proportional protection hedge Instead of using thresholds and caps, proportional protection provides insurance against losses for a fixed percentage of each dollar lost.

The common theme among these strategies is that an investor chooses partial protection rather than full protection, based on an assessment of the extent to which he or she finds losses to be an acceptable risk and what losses must be hedged to preserve trading capital.

My efforts at hedging my portfolio have always emphasized finding the **narrowest possible hedge** for my needs and **limiting the cost** of that hedge as much as possible.

In the descriptions of the hedges, I have adopted some insurance industry terminology to help clarify some important concepts. Specifically, I use the term "deductible" to describe the portion of a portfolio that is unhedged and, thus, 100% at risk.

As Figure I shows, in the case of a disaster protection hedge, the deductible amount is equal to the first 20% of the losses that are





unhedged before the insurance threshold is triggered.

In options parlance, the example in Figure I would be equivalent to holding a long position in the SPDR S&P 500 ETF (SPY) at \$130 and having the position hedged with long SPY \$104 puts, as \$104 = \$130 x 80%.

Every investor should think carefully about being hedged against a disastrous fall in stocks, such as the experience in 2008, but in reality a 100-year flood does not happen very often and can be an expensive hedge to maintain on a daily basis.

For this reason, I like the idea of what I call a gap protection hedge. As shown in Figure 2, an investor may think that it is unlikely that stocks will decline 20% or more, so he or she may prefer to remain unprotected for a 10% drop (i.e., a 10% deductible) but be hedged dollar for dollar for any loss from 10% up to 20%.

The maximum benefit of this hedge is capped at 20%, so once losses begin to exceed 20%, the investor is fully exposed to any incremental losses. In the options world, this type of protection would be similar to holding a long position in SPY at \$130, with a hedge consisting of long



FIGURE I Disaster Protection Hedges 80% of Portfolio with a 20% Deductible Before Insurance Kicks In



FIGURE 2 Gap Protection Hedges Only for a Specified Range, Here from 10% to 20% (10% Deductible, 20% Cap)

SPY \$117 puts and an equal amount of short SPY \$104 puts.

Although I find it helpful to think about hedges in terms of deductible thresholds and maximum benefit caps, proportional protection has the benefit of simplicity. In insurance terms, this is similar to a co-pay.

As illustrated in Figure 3, there is no deductible or cap with proportional protection, and the insurance coverage begins with the first dollar



lost. This example shows how 50% proportional protection looks in graphical form. Here a 20% drop in the stock market only translates into a 10% loss due to the partial offset of the hedge.

In the illustration, the options equivalent for this strategy would be a position of 1,000 shares of SPY that are hedged by five at-the-money puts. Of course, as the contract multiplier for SPY options is 100 shares, one can fully hedge 1,000 shares with 10 puts, meaning that five puts would represent a 50% hedge.

Combining Multiple Hedging Approaches

Some investors may be happy sticking to one of the three type of partial hedging strategies already mentioned, but the real fun begins when one considers these hedges as building blocks that allow an investor to design custom hedges.

For example, an investor is comfortable with accepting the first 10% drawdown as a cost of doing business and is willing to remain unhedged for the first 10% of portfolio losses. At some point, the individual will likely want a hedge to begin to offset some portion of incremental losses but may still think protection is too expensive



FIGURE 3 Proportional Protection Begins Immediately, but Only Covers a Percentage of Losses (Think 50% Co-pay)

to warrant being fully covered at a pullback of 10% or 20%. This person may also think that stocks are unlikely to fall more than 30% but may not want his or her portfolio to suffer losses in excess of 20%.

One way to structure a hedge that meets all of these requirements would be to buy gap protection for stock market losses from 10% to 20%, have proportional protection of 50% to cover losses from 20% to 30% and rely on disaster insurance in the event losses exceed 30%.

With this combination, the total maximum loss is 20% (the first 10% and 50% of the next 20%). And the hedge is structured in such a way that the investor pays nothing for the most expensive insurance (the first 10%), gets a discount on the next most expensive insurance (the proportional insurance for the next 20%) and only pays full price for the most unlikely events, where the market falls more than 30%.

Lower Cost Individualized Hedging

No one can deny that hedges are expensive, particularly for those who put more faith in their trading skills than their hedging skills. Like any high wire act, however, successful traders need a safety net to allow them to perform complex and dangerous maneuvers.

Traders who are able to define their risk tolerance in terms of worst-case scenarios and potential maximum drawdowns have many ways in which to structure hedges to limit their risk. By combining the partial hedging strategies described previously, traders can customize their risk exposure to match their individual needs and implement appropriate hedges that are as cost efficient as possible. EM



EXPIRING MONTHLY FEATURE



UNDERSTANDING ORDER FLOW

Mark Sebastian

Being interviewed by a trading firm can be a tough process. For a trader trainee position, the questioning is usually a series of probability and statistical odds questions. For those who have been in the business a while, the questions are usually less formal. That does not mean the interview is easy, rather the inquiries are more pointed.

As I sat in the office being grilled by the managing director and the risk manager, I was asked, What is the most important key to being a successful options trader? That was interesting, as there could be so many answers: quick math skills, risk management, programming skills, being able to quickly analyze a situation.



Finally, I settled on reading customer paper flow. The managing director and risk manager both smiled. I was offered the job right then. That is how important understanding customer order flow is to a professional options trader.

However, the value of reading flow goes well beyond a market maker not getting run over or being able to figure out whether to lean his or her bid or offer. It can improve an institutional trader's ability to structure a trade and improve his or her execution.

For retail traders who have the ability to pop in and out of a market without affecting price, reading paper flow can increase the profit potential of almost every trade. This does not even take into account that options flow can be smart paper, which can sometimes be predictive of a stock's direction and speed.

Before being able to act on order flow, first the trader needs to understand how to read order flow. This in of itself can be a difficult task. Traders need to decipher which trades matter, which do not, what the trades actually were, what way the customer traded and what the customer was trying to accomplish with the trade.

What Matters?

When I was a kid if I had \$20, that was the equivalent of being rich. In high school, being rich was was having more like \$1,000. Now that I am older, that number is much, much higher. Order flow is the same way. The bigger the stock, the more option volume the stock has, the bigger the order needs to be to make a difference to a trader.



For instance to most readers, 10,000 contracts sounds like a big trade. But in an exchange-traded fund such as SPDR S&P 500 (SPY), the average daily option volume is more than 2.1 million contracts. So 10,000 contracts does not seem like that large of a trade.

In fact, traders in that pit hardly blink when they see a trade that size. It actually takes about 100,000 contracts to get their attention (and yes, something of that size trades quite often).

Take a household name: Campbell's Soup Company. Unlike the soup itself, the option volume is not beefy. On average, the stock trades about 1,500 contracts a day. A 10,000 lot order would be so big that it would equate to about one-sixth of all open interest.

It would also have a profound effect on the implied volatility of the stock. A 10,000 lot trade would also likely move the IV several points in whatever direction the options traded for the traded contract, the strikes around it and possibly every contract month.

So what size trade matters? In some of the extremely high-volume stocks, the numbers deviate a touch, but in general if a trade accounts for more than 2% of open interest, it is a large order.

If a trade accounts for 10% of total open interest, before entering an options trade and possibly even a stock trade, one should take the time to examine strongly what the trader was trying to accomplish.



What Was the Trade, What Side Was the Customer On?

This can be tricky because not every brokerage platform has good time and sales data. This is not a problem for institutions, as they can ask any floor broker they talk to. For retail traders, plenty of services offer this data if one's broker platform is lacking.

Obviously, just knowing calls or puts traded does not provide much help; the trader needs to determine if the trade was bought or sold. This is not always easy as there are times when the trade is not executed on the bid or the ask.

To determine which side the trade was on, traders should look for hints. I think the best one is the IV level before and after the trade. However, this can be very wrong at times, so if one wants to use order flow, I would strongly suggest paying for good information.

Another important piece of information involving options that can completely change the landscape of the trade may not even show up on the options exchange. That is a stock tie. Large orders tied to stock may or may not be directional trades. They can be the trader unloading a stock position or leveraging up a directional opinion. Short calls become straddles, strangles become call stupids, call spreads become ratio spreads and so on.

Basically, without the stock tie, the trader can completely get the bias of the trade wrong. This data is available on many news and information services, and it is probably worth the money given the amount of time it can take to find the stock tie versus the option trades that occur.

What Was the Customer Trying to Accomplish?

This is one of the hardest parts of analyzing the flow; acting on it can be even more difficult. The trader needs to figure out if it was a hedge or a speculative trade, and whether the customer was opening a trade or closing an older trade.

Sometimes this is somewhat simple; other times it is more difficult. For example, if the customer is buying upside calls in the next month out and selling stock delta neutral, that could mean any number of trades. Here are a few tips:

- 1. A front month or second month call or put purchase that is completed naked is usually a speculative bet.
- 2. Collars are always a stock tie.
- 3. Risk reversals are almost always synthetic stock.
- **4.** A straddle or a strangle is a volatility play almost every time.
- A front month call sale is usually a covered call (although not always).
- **6.** A put sale is almost always a premium collection strategy or in lieu of a covered call.
- **7.** A call or put spread is usually just that, thus the direction is somewhat reliable.
- 8. Long-term trades untied are typically hedges.
- **9.** Long-term trades tied to stock can be a volatility play or a trader taking profits and leveraging up at the same time.
- 10. Big time spreads can be really tough to read. Generally, traders using these are trying to take advantage of volatility instead of taking advantage of theta.
- 11. 1x2s (buying one and selling two) are usually directional bets.
- The following orders you will almost never see in larger lots than 100. Do not expect to see these on



paper: a butterfly, condor or double diagonal.

- **I3.** Be careful of large block call trades. The Nasdag OMX PHLX recently lowered rates to make dividend plays disgustingly cheap. Because of this, the size of these plays has exploded. If you see many calls go up and the stock goes ex-div the next day, it is almost certainly a dividend play.
- **14.** If there is a lot of open interest on the line, be careful the trade could be a closing order and, thus, little or no value at all.

An Example

The following is a quick walk through an analysis using LiveVolPro.

First, find a trade. One scan I like to use is stocks with high call-toput ratios and vice versa. I noticed that Oshkosh Corporation (OSK) had a high number of calls that it traded (see Figure I).

Next, I looked to see the total open interest (see Figure 2). I noticed that the open interest was about 20,000 and the volume was usually in the 100s.

Then I looked for the location of the volume (see Figure 3). More than 4,000 went up on the June

Symbol	CompanyNa	Last	LastChg	OptionVolu	Calls	Puts	Ratio
OSK	Oshkosh Tr	28.63		4907	4768	139	34

FIGURE I

	Calls	Puts	Total	Ratio
Total Volume	4,768	139	4,907	34.3 : 1
ISE Sentiment	332	1	333	332:1
Sold on Bid	1,283	4	1,287	320.8 :
% of total	27%	3%	26%	
> 5% OTM	231 (18%)		231 (18%)	
Bot on Ask	3,040	73	3,113	41.6:1
% of total	64%	53%	63%	
> 5% OTM	55 (2%)	24 (33%)	79 (3%)	
Net Deltas	53K	-3K	49K	
Net Premium	\$76K	\$5K	\$82K	
Open Interest	21,999	14,532	36,531	1.5 : 1
Avg Volume	762	641	1,403	1.2 : 1
Avg Open Interest	16,481	15,257	31,738	1:1

FIGURE 2

OI	Volume	Delta	IV	Bid	Ask	Strike	Bid	Ask	IV	Delta	Volume	01
28		46.39	32.63	0.85	0.95	OSK Jun18 29	1.20	1.30	33.29	53.42		251
36	4133	33.70	33.01	0.55	0.60	OSK Jun18 30	1.80	1.90	32.36	67.67		210

FIGURE 3

Time	Symbol	Option	Qty	Price	Exchange	Condition	Market	IV	Underlyir 🗖
10:44:19	OSK	Jun18 30 C	197	0.50	PHLX	AutoExecution	0.40 x 0.50	28.90	28.69
10:44:19		Jun18 30 C	119	0.50	PHLX	AutoExecution	0.40 x 0.50	28.90	28.69
10:44:19		Jun18 30 C	132	0.50	BOX	AutoExecution	0.45 x 0.50	29.80	28.69
10:44:19		Jun18 30 C	353	0.50	ISE	AutoExecution	0.40 × 0.50	28.80	28.70
10:44:19			132	0.50	AMEX	AutoExecution	0.50 x 0.55	31.30	28.71
10:45:21	OSK	Jun18 30 C	136	0.50	CBOE	Regular	0.45 x 0.50	29.50	28.72

FIGURE 4





30 strike. I noticed that there was little open interest prior to the trade, thus the trade was an opening order.

Now I had to figure out what the customer executed (see Figure 4). Although the trade appeared to be several trades, if you look at the time, you can see that this was one order sent through the system that lifted every 0.50 offer on these calls. Then once the offer was gone, the bid was rested at 0.50. It was then hit by another trader.

To close out the order, the trader came back one minute later and lifted more 0.50 offers. Based on the volume of the day (see Figure 2), I had just analyzed more than 80% of the total volume on the day. That volume was all bullish. Now what?

More to Come

I will continue this piece in the next issue of Expiring Monthly. In it, I will discuss how this flow affects implied volatility structure and how to structure a trade around order flow.

Here is a hint: After this trade went up, the IV skew of OSK changed from what is seen in Figure 5 to what appears in Figure 6. Notice how the IVs of the June contract moved on this order.







FIGURE 6



WOLF AGAINST THE WORLD

Trading Options Without Technical Analysis?

Mark D Wolfinger and Bill Luby

Given: Trading Options Without Using Technical Analysis? That's a Big Mistake.

PRO

By Bill Luby

A large portion of the trader universe believes that every important kernel of trading wisdom can be found in the realm of technical analysis. Of course there are also those who lump technical analysis devotees in with those who believe in alien abductions, astrology and reading the entrails of sacrificed animals to predict the future.

My view is simply that those who ignore technical analysis do so at their own peril, particularly if they trade in the short term. As a rule of thumb, the shorter the trading timeframe, the more important it is to rely on technical analysis.

On the other hand, the longer the timeframe, the easier it is to incorporate fundamental analysis into successful trading strategies. As someone who rarely looks out more than two expiration cycles for my options trades, I find that new fundamental developments often take an excruciatingly long time to filter their way down to the prices of stocks and other optionable assets.

Ultimately, it does not matter if you are an adherent of technical analysis or a skeptic when the world is populated by a large group of traders who do take TA seriously. For instance, even if these traders are wrong in their assertion that TA provides a statistically significant edge, their actions can lead to a self-fulfilling prophecy.

As an example, if silver futures were to break out above \$50, a level that was tested April 25 and again April 28, I would imagine there would be widespread short covering, as well as a flood of new buy orders entering the market. One could make a similar case for crude oil breaking below \$100, the S&P 500 Index breaking below 1,300, etc.

An options trader may enter a new options position for any number of reasons, some of them having nothing to do with technical analysis. Once in a position, however, traders should manage the position with at least one eye toward technical analysis.

Managing open positions and exits is perhaps the most important aspect of trading options. Here is where I believe technical analysis can be a particularly valuable tool.

In addition to managing the option itself, I encourage all traders to use technical analysis of the underlying asset's price action to help establish exit points, whether in the form of stop losses or zones in which to take profits. Securities tend to have





tipping points across their price ranges, and the smart trader will try to sniff these out in advance.

For the technical analysis neophyte, a simple focus on previous price support and resistance levels is an appropriate use of TA.

For the more experienced TA practitioner, analysis need not be limited to price action. Volume is ripe with TA potential, particularly if one examines new N-period volatility highs.

For the options trader, both implied and historical volatility data can also be subject to technical analysis. Knowing the implied volatility trend, prior extremes and a long-term average can be instrumental in planning both entries and exits.

The bottom line is that short-term traders have little choice but to resort to technical analysis to be consistently successful, while longerterm traders can also benefit from TA as an aid for position management and refining exits.

Ultimately, both technical analysis skeptics and adherents can expand

their use of it to enhance their options trading, some by incorporating the basics and others by using TA to evaluate the underlying asset in a more creative fashion.

CON

By Mark D Wolfinger

The vast majority of traders have confidence in their ability to predict market direction correctly. However, because studies have shown that most traders overestimate how well they perform, it is reasonable to assume that such findings also apply to followers of technical analysis.

I understand the euphoric feeling that comes with making the right call. And perhaps it is worth the effort to predict market direction—just to get that feeling—even if it occurs on 50% of my trades.

We all have our backgrounds with which to deal. Most of the time our education is beneficial and we learn how to solve problems, communicate and think for ourselves. At other times, we were taught in environments that were stricter. Lessons

Click

Here

were edicts, and students were not prepared to make their own decisions.

As for me, I grew up with the idea that delta-neutral trading was the end-all, be-all of option trading and that no one could consistently predict the stock market future. I accepted that view and learned that when I tried to bet on direction, it usually did not go well.

That is how I got here. I do not look at charts (OK, I do glimpse at point and figure charts for support and resistance levels) but do not depend on them. From my perspective, becoming a successful options trader requires applying sound principles of trading and risk management. Prognostication skills, while obviously beneficial, are not needed.

I am no longer an adherent of delta neutrality. Things have changed. Volatility skew was unknown when I began trading, but today that skew has a significant effect on the delta of out-of-the-money options. I pay more attention to being risk neutral than delta neutral. I would rather own a position with a symmetric risk (continued on page 29)

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A Silver and Gold Pairs Trade

Bill Luby

Background and Rationale

With silver hogging so many headlines in the financial pages lately, the most difficult part of trading the metal has been to show some restraint and wait for high percentage opportunities.

Having been a silver bull for the last few years, I watched with interest in the latter half of April as silver futures took two hard runs at the \$50/ounce level, failed both times and was then hit by a historic selling wave. Part of the reason for the sharp selloff in silver was the increase in margin requirements imposed by the COMEX, which raised the initial margin requirement four times from February to the first week in May, with three of the margin hikes falling in the last week. As a result of these changes, margin requirements for initial positions rose from \$6,075 to \$16,200 during this period.

The flurry of margin requirement raises helped to trigger margin selling that drove the price of silver futures down from a high of \$49.75/ ounce on April 25th to a low of \$33.15/ounce just nine days later on May 6th—a decline of more than 33%. How much of the drop was the result of margin selling and how much may have been attributable to other reasons remained to be seen, but clearly there was a large contingent that thought silver had been in a speculative bubble that had burst. The big question was whether or not a 33% drop meant was enough to draw in buyers or just the start of a larger leg down.

As May 6th was a Friday, I watched the price action closely and saw silver rally more than 7% from its intraday low before the close. Sensing the possibility of a bottom I reached for my mouse, not for a directional play so much as a volatility play. Implied volatility in the silver ETF, SLV, has been in the mid-30s in April and jumped to a historic high of 67 on May 5th, before falling back to a still stratospheric 62 just before the close on May 6th.

Setup and Entry

My knee-jerk trade idea was to sell at-the-money puts, a strategy I have frequently deployed when IV spikes following a sharp selloff. Before I entered the order, however, I thought about the possibility of a 'dirty hedge' using the gold ETF, GLD. Gold had experienced a much smaller selloff than silver during the same period, had not been distorted by changes in margin requirements, and had seen IV increase from the



mid-13s to about 19, about half the percentage increase as silver experience during the same period.

As Friday's session was about to come to a close and investors would have the weekend to replace emotions with reason, I elected to short SLV at-the-money puts and hedge this trade with long GLD at-the-money puts. With SLV trading in the mid-34s and GLD just over 145, I chose the slightly in-themoney 35 strike for SLV and the slightly out-of-the-money 145 strike for GLD. The options were selling at just about the same price (the underlying in GLD was about four times higher, but the IV for SLV was about four times higher as well), so this was a simple I:I ratio trade. I used the May expiration to maximize time decay, receiving the daily close for both ETFs: short SLV May 35 puts at 2.16; long GLD May 145 puts at 2.03.

My goal was to watch silver rebound, pocket the better portion of the 2.13 premium, and hopefully see gold lag its precious metals counterpart, allowing me to salvage some of my initial purchase price on the GLD leg. My biggest concern was that silver would start another leg down and gold would rally, in which case I was committed to cutting my losses early.



Position Management

For this trade to be successful, silver was going to have to put in some sort of bottom and right from the start, things looked promising. I have added a table of values in Figure 1 below to supplement the commentary. The table is best read from the middle outward. For example, on May 9th, the position profit and loss was +0.15, following a decline in the SLV put from 2.16 to 0.85, while the GLD put declined from 2.03 to 0.87. SLV's IV fell more than 5 points and GLD's IV was down about 1.5 points. The underlying for both SLV and GLD are shaded green because they are both out of the money (and the position was established for a credit.)

Monday, May 9 – The first day unfolds according to plan, with SLV bouncing 7.3% while GLD rallied only 1.4%. The jump in the underlying and the corresponding drop in IV for both SLV and

SLV

34.48

36.98

37.52

GLD establish this as a profitable trade right off the bat, up 0.15.

Tuesday, May 10 – The rally in both precious metals continues and IVs drop once again, with the P&L increasing from +0.15 to +0.25.

Wednesday, May 11 – SLV reverses hard, yet GLD falls only slightly, turning the position from a profit to a loss of 0.63. With SLV now in the money, risk management is critical and it looks as if GLD may not be up to the task.

Monday, May 16 – After a relatively uneventful Thursday and Friday, today sees a sharp decline in silver that brings is below Thursday's low. Worse yet, SLV's IV has spiked back up over 60, while GLD's IV remains relatively subdued, robbing me of some of the benefit of the dirty hedge. The position is critical with losses now at 1.42. Assuming the trade does not deteriorate further,

GLD IV

18.80

17.34

16.56

2.03

0.87

0.66

GLD

145.30

147.38

147.90

GLD % chg

1.4%

0.4%

-<mark>1.0%</mark> 0.1%

-0.7% -0.2%

-0.4% 0.6%

0.0%

1.3%

ō				
Σ			SLV % chg	
au		5/6/11		
ž		5/9/11	7.3%	
Livevol.com,		5/10/11	1.5%	
		5/11/11	-8.3%	
		5/12/11	-3.1%	
		5/13/11	3.2%	
		5/16/11	-4.5%	
		5/17/11	0.7%	
		- 1 1		

	5/11/11	-8.3%	34.39	54.40	1.74	-0.63	0.98	16.78	146.45
	5/12/11	-3.1%	33.32	57.15	2.35	-1.31	0.91	16.88	146.59
	5/13/11	3.2%	34.39	56.97	1.62	-0.28	1.21	17.40	145.63
	5/16/11	-4.5%	32.85	60.16	2.61	-1.42	1.06	16.83	145.37
	5/17/11	0.7%	33.09	55.31	2.19	-0.85	1.21	16.82	144.74
	5/18/11	3.4%	34.23	50.87	1.13	-0.41	0.59	16.31	145.60
	5/19/11	0.1%	34.26	47.94	0.90	-0.46	0.31	15.74	145.65
	5/20/11	-0.2%	34.18	46.35	0.80	-0.66	0.01	15.67	147.59
	expiration				0.82	-0.69	0.00		
_									

2.16

0.85

0.54

SLV IV SLV May 35 P Position P/L GLD May 145 P

0.00

0.15

0.25



61.88

56.33

51.86

I am now looking at Wednesday's FOMC minutes as a potential watershed for precious metals heading into Friday's expiration.

Wednesday, May 18 – SLV has now rallied two days in a row, but the gains have been small: +0.24 yesterday and +0.14 today. I caught a break when GLD fell yesterday, but today's rally in gold wiped out all of those gains and then some. SLV's IV is finally starting to come down to the 50 level, as I had hoped, but the problem is that the SLV put is in-themoney by 0.77 right now, while GLD is now out-of-the-money.

Thursday, May 19 – I almost closed this position out today for a loss. SLV rallied for a third day, but with a gain of only 0.03, the puts are still in-the-money by 0.74. The GLD puts remain out-of-the-money. With one day remaining, my SLV leg is +1.26, yet my GLD dirty hedge is more dirt than hedge, -1.72 from the original purchase price.

Friday, May 20 – There was a huge divergence between SLV and GLD today, but not the kind I was looking for: SLV fell 0.09, while GLD had its biggest gain in nine days. I get to keep my 0.13 and make an additional 1.34 on the SLV short, but the long GLD put expires worthless and I



lose the full 2.03 on that leg, for a 0.69 loss on the position.

Epilogue and Takeaways

I called the GLD leg a 'dirty hedge' because of the inexact nature of the pairs trade. In this case my original trading idea was profitable, but the so-called hedge ended up costing me more than my profits from the SLV leg.

I thought I had an edge in that enhanced margin requirements and margin selling might have temporarily led to a dislocation between the normal relationship between these two precious metals. As it turns out, other technical and fundamental factors proved to be more important than any dislocations due to margin selling.

This trade was immediately profitable, yet turned sharply against me in one day – so sharply that I was deeply in the hold before I could prevent a small profit from turning into a large loss.

While I tried to convince myself that this was more of volatility trade than a directional trade, the selection of ATM strikes undercut that logic. In the end the biggest factor that worked against me was that silver bottomed seven trading sessions after I had anticipated that it would—and with a two week time frame for the trade, it was too late to make up the losses on the last few days of the trade.

Selling puts or straddles (a better pure IV play) following a large drop in price is still one of my favorite options plays. It has been my experience, however, reinforced again with this trade, that the front month options are usually not the best month to trade this phenomenon, as the bottoming process often takes longer than anticipated, making the second month a more attractive time frame for this strategy to play out.





Practical **Pranks**

Mark Sebastian

When most people think of trading floors, they think of high finance; gritty traders yelling at the top of their lungs; boiler rooms and closeddoor handshakes between cronies; or panic, stress and despair. Me, on the other hand, I think of tomfoolery and all of the silly things that used to happen on the floor.

One of the more popular activities on the floor was gambling. Traders will gamble on anything: food, sports, dead pools, you name it.

One of the funnier events I ever witnessed was two men having a foot race around the Chicago Board Options Exchange because they fought about who was faster. Another time, a trader tried to drink an entire gallon of chocolate milk in 20 minutes. Needless to say, that bet did not end well for anyone.

But my favorite stories are about the pranks. If you were a new clerk on the floor, you could almost count on being sent from building to building looking for one of two things: the keys to the clearinghouse or a box of upticks.

Generally, it did not stop there. Because of the constant one-upmanship, traders were constantly trying to play gags on each other. As a loud mouth, I was a popular target for attempted pranks. Most failed, but I did get caught one time.

Gotcha!

In 2006 when I was still with Group I, I was minding my own business trading in the General Motors pit (the first General Motors, not the one traded now for those new to the business). As I made markets on puts and calls, I heard a quiet chant begin. As time passed, the chant grew louder and still louder. A roar of "ye haw!" horse braying, "bang, bang!" and "Git along little doggie!" filled the space.

At first, I ignored the noise, but it got to the point where my attention piqued. I thought, "Why in the world are all of these traders, brokers and clerks saying 'ye haw?" It was then that I noticed that they were not just saying "ye haw," they were saying it to me.

I walked over to a broker and asked, "Why does everyone keep yelling cowboy stuff at me?"

At that point, much like the little girl in "A Christmas Story" who points out to the teacher that Flick has his tongue stuck to the flag pole, the broker pointed down to my shoes. I would have been mad if it were not so clever and funny.



One of the booth brokers, who obviously needed more work, had fashioned some very intricate paper spurs out of the card board back of some trading cards. While I was wrapped up in trading, he had stealthily taped them quite securely, I might add, to the back of my New Balance 806s. I had been so focused on trading that I did not notice what he had done.

Needless to say, the entire section of the floor erupted in laughter and gave me the same sarcastic applause similar to the ones fans will give a bad pitcher who manages to throw a strike after 6-7 balls in a row. I could not help but laugh about what had happened and still do to this day.

The Lighter Side

In fact, even more so than the trading, I think the floors will be missed for the camaraderie, friendship and laughs that developed in between the intense moments of serious trading.

Lighten Up

Although there are hundreds of war stories that can be shared about the trading floor, sometimes it is good to reflect on the lighter side of a heavy business.





Expiring Monthly Interview with TradeKing Chairman and CEO Donald A. Montanaro

Mark D Wolfinger

As a contributor to TradeKing's Web site, I was pleased when CEO Don A. Montanaro agreed to this interview. TradeKing offers competitive commissions and prides itself on its customer service.

The following comes from the company's web site. It is selfpromoting but does explain its philosophy: "The motto we live by here at TradeKing is 'Be Good.' These words summarize our philosophy that actively doing right by others — from our employees to our clients to our communities and our business partners — not only makes good business sense but makes us feel proud of who we are and what we do every day."

Expiring Monthly: As TradeKing's CEO during years of explosive growth in options trading, I imagine that sitting in your chair is an exciting place to be.

Donald Montanaro: I'm lucky to be where I am with the team that I have—and we have fun every day. We try to do the best job for our customers.

EM: How did you get started?

DM: Of the seven of us who started this company, five began

through the customer service channel of the business.

After getting a law degree, I headed west and started with Quick & Reilly, working part time in the mail room—stuffing envelopes and being useful in any way that I could. I soon began giving quotes over the telephone. People were no longer satisfied with seeing the quotes once per day in the newspaper; they preferred calling their brokers 20–30 times per day.

That's where customer service began for me. Remembering the customer's voice and the stocks each followed.

EM: Did you become a broker who took customer orders?

DM: Sure. I got my Series 7 license and remained with Quick & Reilly. Then I moved to the Palo Alto office. That's where I worked with Bill Porter [founder of E*Trade]. He developed a screen trading system, and essentially invented online trading.

In that Palo Alto office, I became the broker who took over this "little system" of online trading. It was not run efficiently. I received a print-out of the



order—remember those dot matrix printers?—then I would check the customer's account to verify there was enough money. Then I'd check the quotes to see if it was a marketable order. Last, I'd go through our wire order system and send the order to the trading floor.

There were no puts in those days, and customers who wanted to enter a call spread had to go through our black box. Because these were verbal orders, we had to be certain that every character was typed correctly. There was a lot of friction [delays] with the orders. However, we were delivering the very first electronic orders for our customers.

EM: How were your commissions?

DM: We, Schwab and Fidelity were the only discount brokers, and the fees were high. We had a \$37.50 minimum commission. A very large discount to the commissions charged by other firms, but it was much higher than today's prices.

Whenever a new customer would ask about moving an account to one of the three discounters and asked what makes Q&R better, I'd tell them, me, customer service. No trade advice, but we encouraged questions and gave good answers to each of them. We helped them learn about the markets. Research and investment tools were, and still are, at the heart of where it's at in helping the customer.

So my career continued along the lines of electronic customer service as I moved to New York. We soon had Q&R on the Internet—one of the first four or five brokers to offer that opportunity to customers.

EM: When did TradeKing enter the picture?

DM: After speaking with Mr. Quick in 1996, Rich Hagen, currently TradeKing's President and COO, and I decided we should have an electronic only trading firm. We opened it as a subsidiary of Q&R [SureTrade] in 1997. We became the first firm to specialize in option trading and eventually separated from Quick& Reilly after it was taken over by Bank of America.

EM: Good decision.

DM: I left in 2000 and Rich shortly afterward. The group that founded TradeKing is composed of colleagues from those Q&R days. This firm began in 2005, and we always had an interest in options and options traders. It's a profitable business, and helping customers add option strategies to their arsenal was mutually beneficial. **EM:** The business has evolved quickly.

DM: The big turning point—the main factor that turned investors onto this idea of electronic trading—was the opening of the ISE [International Securities Exchange], in May 2000.

EM: I believe that your firm is one of the few that does not offer a paper trading account. Why is that?

DM: It's an internal debate. I'm not a fan of paper trading. Traders are encouraged by gains but tend to ignore losses. And that can be harmful.

EM: Paper trading allows the customer to get familiar with your trading platform before using it to place real trades.

DM: I don't know if we mention this on our website, but we encourage customers to enter orders, especially option orders, that are far away for the true market. There is no cost and no chance for an unwanted execution. They learn how to enter, change and cancel orders. They like the ability to see their bid or offer reflected on the screen. As they gain confidence in their ability to use our platform, their bids and offers get closer and closer to the real market. Eventually they begin trading.

When trading, we encourage customers to enter real orders at





midpoints. For beginners, that's something they may not have considered.

EM: What percentage of your customers trade options?

DM: On any given day, 40% to 45% of our trade executions are in options.

EM: How are you doing on market share?

DM: There are five online firms that handle 97% of the options business: Fidelity, Schwab, E*Trade, Scott Trade, Ameritrade. We take the position that we can charge lower fees and provide better service. So we entered the niche.

EM: When did all this take place?

DM: In 2005 we raised our capital, built the technology and in December launched the firm.

EM: Do any of the people who put this firm together have floor-trading experience?

DM: No. We came from customer service and believe we stand out in that area.

EM: That bodes well. From my experience, the general Wall Street attitude is for firms to take care of themselves and not care about customers. Your customer service reputation is very positive. Is anything else going on? I note that you recently lowered the trading permission level required for cash-secured put selling.

DM: We also have new, reduced pricing for customers who trade more than eight contracts in a given trade.

EM: Where do you expect to find future customers?

DM: We attract customers from these "big five" firms. These are customers who are trading online for the first time and who seek much better rates.

We also get people who recognize that a couple of annual meetings with a financial advisor is not enough and that they would be better served to handle their own finances and investment decisions. That's not for everyone, and most clients have full-time jobs. But some recognize that they can learn and do for themselves.

EM: You are saying all the right things. I wonder whether I'm speaking with the CEO or the head of public relations.

DM: There is plenty of business for everyone, and other firms may specialize in other areas, but for us, it's taking care of the customer that comes first.

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Why Decision Theorists and Average Investors **Are Both Right**

Jared Woodard



Humans almost never believe anything with absolute certainty. Most of the time, we regard things to be true to greater or lesser degrees.

Based on a weather forecast, I might believe that it will rain tomorrow to the degree 0.5. Or to move a little closer to home, I might believe that a stock will be at or above some price p at expiration to the degree 0.4, in which case I would buy the 40 delta call if, and only if, the strike of that call is less than or equal to p.

Bayesianism is a set of ideas actively used in philosophy, statistics and other fields that try to interpret probability in terms of degrees of belief. Here is a helpful summary of the core concepts of Bayesianism:

- People possess an important mental attitude of degree of belief or credence that can often be given numerical values.
- 2. For an agent to be perfectly rational, his or her degrees of belief must obey the axioms of probability theory.
- **3.** Conditionalization, or some close relative, is the standard way beliefs change over time, according to Kenny Easwaran, author of *Bayesianism I: Introduction and Arguments in Favor.*

The first two claims are uncontroversial. The first claim just codifies the intuition that our beliefs are graduated. For that proposition to be false, we would have to think that the statement "There is a 50% chance of rain tomorrow" means not that I believe to the degree 0.5 that it will definitely rain, but that I believe to the degree 100% that there is a 50% objective chance of rain (or something like that). Or you could insist that our degrees of belief cannot be quantified, which is only a plausible objection for some cases.

Claim No. 2 explains how, at a single moment an agent's beliefs should be related to one another. The simplest defense is a Dutch Book argument.

For example, say I am willing to buy a series of lottery tickets on the outcome of an election; any winning ticket pays \$1. I will pay 40 cents for a ticket saying that Jones will win, 30 cents for a ticket saying that Brown will win and 35 cents for a ticket saying that Smith will win. If you are making markets in those tickets, you can sell me all three of those tickets and pocket a guaranteed 5 cents. In financial markets, we call that arbitrage; so the point of claim No. 2 is that a rational agent does not believe things that create conditions for arbitrage.

I am going to leave the third claim alone—and that is actually where the meat of Bayesianism lies. But even if we stick with the first two ideas, they raise a question about the rationality of investors and the coherence of Bayesianism and decision theory.

Arbitrage Exists

While true arbitrage conditions are rare in the classical sense of the term—e.g., the momentary mispricing of liquid assets on an exchange—there are persistent arbitrage conditions in a broader sense.

Statistical arbitrage between asset pairs is still a viable area of research (see my friend <u>Jeff Pietsch's</u> work on this), and I have written in this journal and <u>elsewhere</u> about the presence of a volatility risk premium in options markets. So let us grant for the sake of argument that some arbitrage conditions exist.

If we take Bayesianism in particular or decision theory in general seriously, that means investors are basically irrational en masse. Obviously, the investors who actively create Dutch Book conditions are failing to conform their beliefs to the axioms of probability.



Irrationality Persists

But other investors are also not acting rationally: Anyone who reads about or notices those conditions and does not take advantage of them (perhaps preferring some other investment or an already existing portfolio (status quo bias), etc.) is opting for an investment with an uncertain probability of profit instead of a sure thing.

I am not sure, however, that these are the right conclusions to draw. In fact, I have a hard time concluding that an equity investor who buys some put options as insurance is acting irrationally, even if it is true that he or she is also creating Dutch Book or arbitrage conditions against him- or herself in the process.

The reason that a rational investor with a hedged portfolio and the volatility risk premium can coexist is that decision theory has left out some important information about the utility pursued by real agents. This is not a novel point. It is actually a longstanding objection in the literature.

I do not want to ignore the incredible usefulness of Bayesianism and decision theory, but I also cannot fault ordinary investors for paying slightly more than they should for options-based insurance.

Behaviors Do Not Conform

So here's a safe conclusion: Financial markets offer good examples not just of how irrational agents can be, but also of how difficult it is to model their behavior in a comprehensive way. Maybe decision theory and average investors are both right?

Reference

Easwaran, K. (2011), Bayesianism I: Introduction and Arguments in Favor. Philosophy Compass, 6: 312–320. doi: 10.1111/j.1747-9991.2011.00399.x

The New Options Trader (continued from page 8)

For example, when selling the 80 put, should the wing (option bought for protection) be the 75 put or the 70 put, and how does one decide?

As the new trader, it is probably impossible to know in advance just which decisions are going to become troublesome. The point is that when you find something that is not obvious, do not fall into the trap of believing the choice is not important. Raise the question of the person teaching you to trade. If reading a book or blog, write to the author or find another helpful source to answer your questions. Long-term success is in the details. Anyone can slap on an options trade. But to increase your odds, you want to understand your alternatives and make a good decision based on *your* style of trading and tolerance for risk.

Wolf Against the World (continued from page 20)

chart, even when the Greeks are not all near zero.

Thus, I open positions that suit my comfort zone. I initiate a trade with acceptable Greek levels—i.e., acceptable to me and my comfort zone. I manage risk as dictated by both my risk graph and the Greeks.

When I believe a position has more than enough reward potential to

justify the perceived risk, then I consider it a good trade—either to open or hold. I do not believe it is necessary to use any form of technical analysis to know where I stand or to help with trade decisions.

Nevertheless, Bill Luby made some good points, and there is every reason to avoid paying up at resistance or selling at support. Even if those levels fail to hold, just knowing about them cannot hurt.

I am not a convert. I am not a believer. But if I am not so uncomfortable that I must exit or adjust the trade, I am willing to peek at the charts just in case they provide some useful information. Not that I expect they will help, but there is no reason not to seek extra input at decision time.

