

Key Concepts

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- Variance and standard deviation

Sensible option price analysis

Finding underpriced options doesn't necessarily require a lot of math. Visual analysis of weekly range and option price comparisons can be quite effective at finding bargains.

BY GEORGE HOEKSTRA

Most stock and futures traders assume two things about options trading. First, there's a lot of math involved — all that stuff about implied and historical volatility, standard deviation, and complex option pricing models — not to mention delta, gamma, theta, et al. Second, most people with a passing knowledge of option trading think pros tend to sell options and collect premium (benefiting from time decay) rather than buy options and fight time. In fact, however, while it's true average investors and traders may buy options more than pros, very little math is needed to identify underpriced "bargain" options, by using simple price and volatility analysis instead.

A good way to do this is to buy options on stocks expected to be more volatile than what is being implied by their prices (see "Key concepts" on p. 78 for the technical details of implied vs. historical volatility). Higher volatility means higher option prices, so this strategy increases the chance of a profitable trade — which is precisely why successful options traders focus their attention on volatility analysis.

A simple way to analyze volatility is to compare the weekly

ranges (the difference between the high and low) of different stocks and indices. Using this volatility measure, you can then group stocks into tiers, from most volatile to least volatile, based on how much they typically vary from high to low in a week. The idea is that stocks within a given tier should have similarly priced options, and those that don't are outliers that could be bargains.

Sometimes it's easy to buy an illiquid option near the bid-ask average, and sometimes it's impossible. If you try and it doesn't work, nothing is lost. If you succeed, you have an edge.

Weekly range analysis

For example, Figures 1 and 2 show weekly price charts for two stocks with similar volatility, the iShares MSCI EAFE Index Fund (EFA) and Starbucks (SBUX).

Both charts are scaled with a \$20 range on the price axis to make it easier to visually compare their trading ranges.

The two stocks traded a \$15 range between Aug. 1, 2011 and Feb. 6, 2012: EFA from around \$45 to \$60, and SBUX from around \$35 to \$50. The weekly range of both stocks was around \$4 per week during August and September, and then contracted to just under \$2 per week during January. Neither stock made a large jump or spike, up or down, during this period.

Because these two stocks have shown the same volatility

pattern during this six-month period, it's reasonable to expect their options to be similarly priced. Let's take a look at their option prices and see how they compare.

Comparing option prices

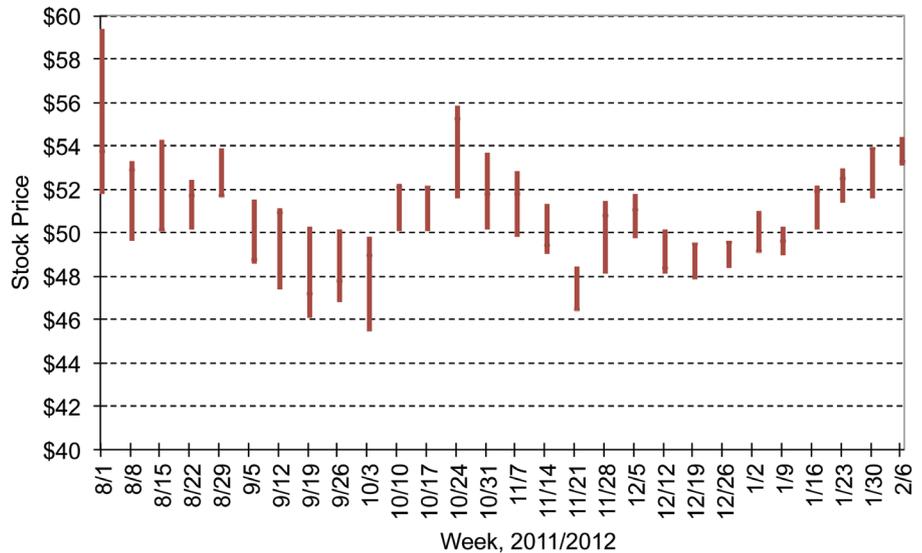
Table 1 (p. 36) shows pricing data for January 2013 call options as of Feb. 29, 2012. The prices from Table 1 are charted in Figure 3 (p. 36) in a way that allows easy visual comparison. The option price is tracked by the (vertical) y-axis, while the amount each contract is in the money is on the (horizontal) x-axis. Charting the data this way adjusts for the differences in how much each option contract is in or out of the money (that is, how much the call option's strike price is below or above the stock price). The curves essentially coincide, showing that the options on these two stocks are priced the same.

Many other stocks showed the same volatility pattern (a gradual \$4- to \$2-decline in their weekly ranges) during this six-month period. These stocks would fall in the same volatility tier as EFA and SBUX, and most of their options adhere to the curve shown in Figure 3. As a result, we'll use Figure 3 as a benchmark for how January options should be priced for stocks with the SBUX/EFA volatility pattern.

The goal for an option buyer is to find stocks with the same or greater volatility, whose options are priced cheaper than the benchmark.

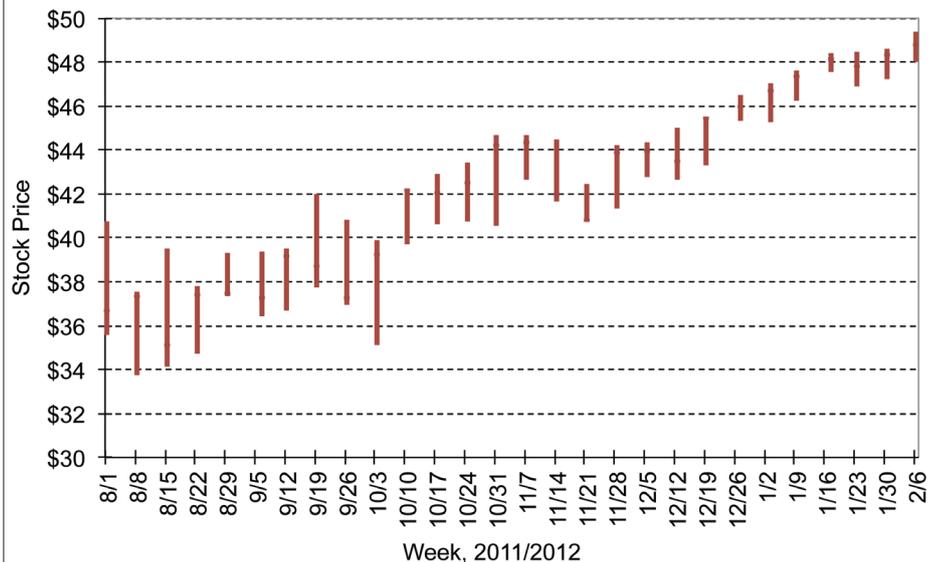
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FIGURE 1: EFA WEEKLY STOCK PRICE CHART



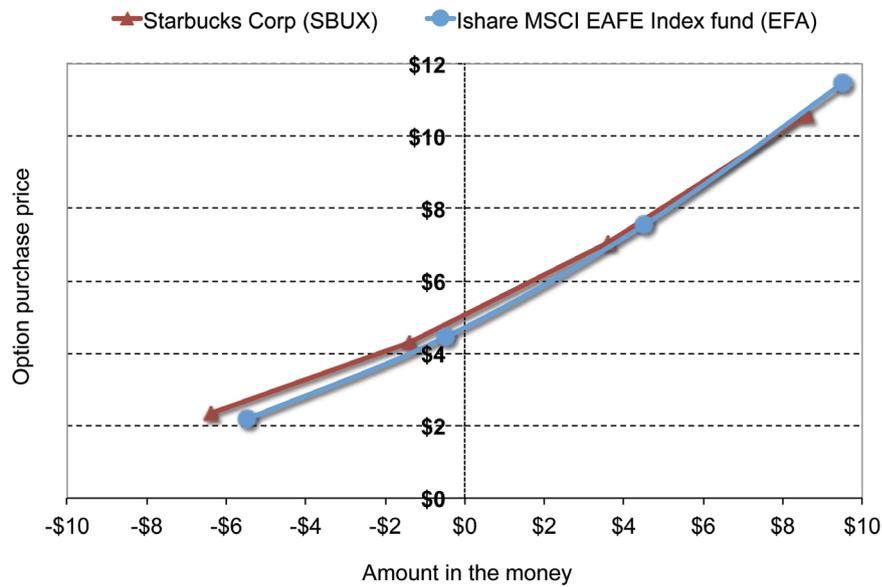
EFA traded in an approximately \$15 range (from around \$45 to \$60) during this period, and its weekly range declined from around \$4 week at the beginning of the period to around \$2 in January.

FIGURE 2: SBUX WEEKLY STOCK PRICE CHART



SBUX's overall range and weekly ranges were comparable to those of EFA.

FIGURE 3: EFA AND SBUX OPTION PRICES



The EFA and SBUX option prices follow the same curve, which means they are priced equivalently.

Finding an outlier

Figure 4 includes a stock that seems to meet the challenge. The green curve shows the option pricing chart for January options on Travelzoo (TZOO), along with the benchmark curves for SBUX and EFA. Travelzoo's option price curve is lower, meaning its call options are cheaper. So let's compare TZOO's stock volatility to that of the other two stocks.

Figures 5 and 6 (p. 38) show stock price charts for TZOO. Figure 5's y-axis has a \$40 range, from \$20 to \$60. The zoomed-out scale is necessary to show that Travelzoo fell by almost \$40 during August and September, before consolidating mostly in the high \$20s and low \$30s. To allow visual comparison with our EFA and SBUX benchmarks, the TZOO data is charted in

Figure 6 with \$20 scaling on the y-axis, the same scaling used for the charts of the benchmark stocks.

The heights of the bars clearly show TZOO is more volatile, based on the weekly range, than the EFA and SBUX benchmarks. Even after settling down in the mid-\$20s, TZOO still continues to vary by at least \$2 per week, and sometimes as much as \$4 per week, compared to less than \$2 per week for our benchmarks EFA and SBUX. In fact, there was only one week out of 26 when Travelzoo varied less than EFA.

Now we know Travelzoo stock is more volatile than the benchmark and its January call options are cheaper. By the yardsticks of this analysis, Travelzoo call options look like a bargain.

Making the trade

An important point to keep in mind if you do this analysis is that you will find the most attractively priced options are almost always thinly traded. Such options tend to have wide bid-ask spreads, which means they are more expensive to trade. The prices in Figure 4 are based on the midpoints of each option's bid and ask prices. However, because of the wide spreads, it sometimes might not be possible to buy the options at those prices.

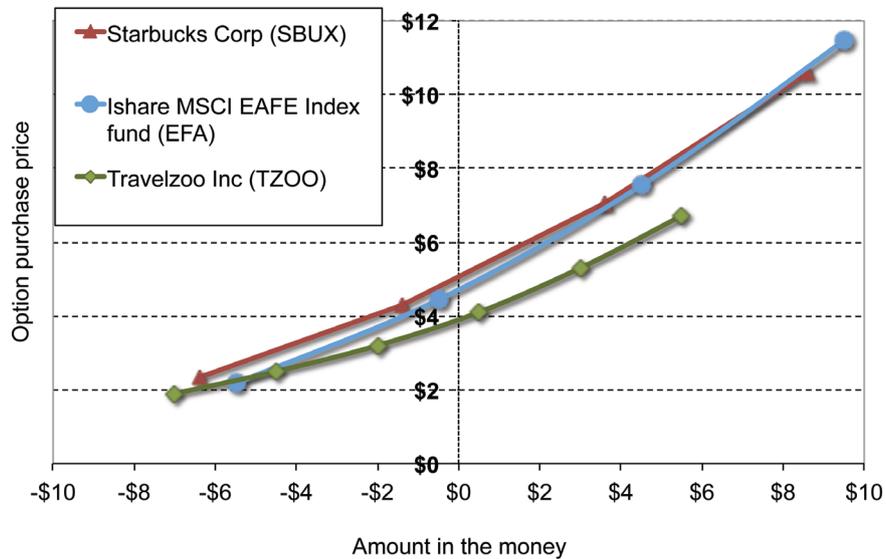
Table 2 shows the complete pricing data for the at-the-money options involved in our three stocks. The open interest (the number of unclosed option positions) is shown in the bottom row as an indicator of trading activity and liquidity. The benchmark options have much higher open interest, and they are quoted with tight spreads: \$4.25-\$4.35 for SBUX and \$4.35-\$4.50 for EFA.

TABLE 1: CALL OPTION PRICING FOR EFA AND SBUX

	iShares MSCI EAFE Index fund (EFA)	Starbucks (SBUX)
Stock price	\$54.50	\$48.60
Jan. 40 call	-	\$10.60
Jan. 45 call	\$11.45	\$7.05
Jan. 50 call	\$7.55	\$4.30
Jan. 55 call	\$4.45	\$2.34
Jan. 60 call	\$2.18	-

January 2013 call option prices (where available) are shown for five strike prices in EFA and SBUX.

FIGURE 4: EFA, SBUX, AND TZOO OPTION PRICES



Travelzoo's option price curve is lower than those of EFA and SBUX, which means its call options are cheaper.

The relatively illiquid TZOO option is quoted at \$2.60-\$5.60, the midpoint of which is \$4.10.

Can you actually buy that TZOO call option at \$4.10? The way to find out is to try. In this case, we have a real-money example: A bid was entered to buy this option at \$4.10 with the stock trading at \$25.50. The bid moved the quote to \$4.10-\$5.60. Fifteen minutes later, with the stock at \$25.70, another bid to buy was entered at \$4.50, at which point *both* bids were immediately filled, giving an average fill price of \$4.30 with the stock at \$25.70. The next day, more options were purchased at \$4.30 when the stock was trading at \$25.80. Despite the wide spread, we were able to buy this option at the average price assumed in the analysis.

Experience shows sometimes it is easy to buy an illiquid option at a price near the bid-ask average, and sometimes it is impossible. If you find a bargain, it pays to try to buy it. If you try and fail, nothing is lost. If you succeed, you get an edge.

Risk and reward

What's the benefit of buying the Travelzoo options vs. the EFA or SBUX options? After you spend \$4.10 on an option, you want your stock to move — and you prefer it be on a stock with the potential to move \$3 or \$4 in a week, not just \$1 or \$2. Using recent historical volatility as our guide, it looks like Travelzoo has a better chance to move \$3 or \$4 in a week than EFA or SBUX — and that's the edge we are seeking with this strategy.

Are we overlooking something? Might there be a good reason Travelzoo calls are priced cheaply that we don't see? Yes, that's always a risk. But this strategy is about hunting for bargains based on volatility, and there is no point doing the analysis if you are going to chicken out when you find one. That said, check the news on the stock for dividends, splits, spin-offs, merger or takeover situations, and option contract adjustments that might account for the option-pricing discrepancy. If you see nothing unusual, then go with the trade — but make sure it is no more

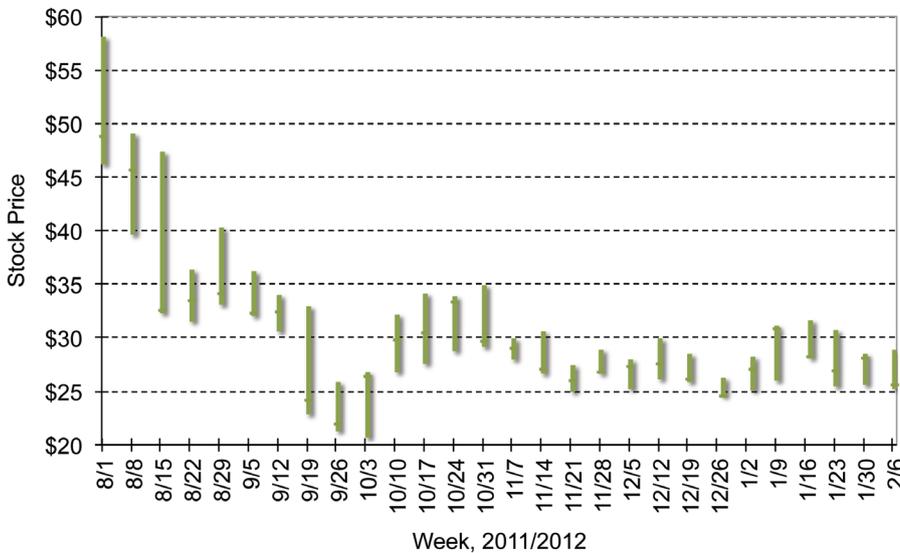
TABLE 2: BID-ASK PRICING DATA FOR CALL OPTIONS

	Starbucks (SBUX)	iShares MSCI EAFE Index fund (EFA)	Travelzoo (TZOO)
Stock price	\$48.60	\$54.50	\$25.50
Option	Jan. 50 call	Jan. 55 call	Jan. 25 call
Option bid price	\$4.25	\$4.35	\$2.60
Option ask price	\$4.35	\$4.50	\$5.60
Average price	\$4.30	\$4.43	\$4.10
Open interest	3,730	34,831	201

The less-liquid TZOO option has a much wider bid-ask spread than the SBUX or EFA options.

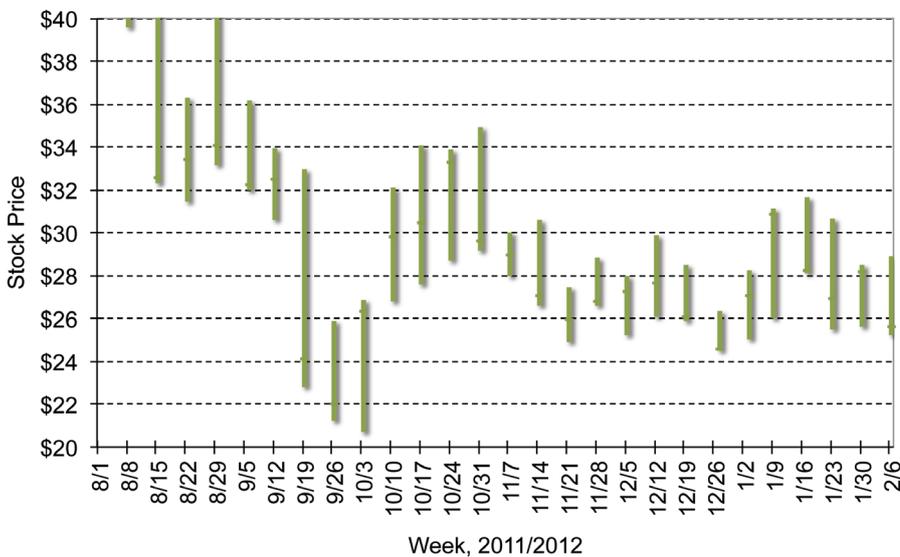
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FIGURE 5: TRAVELZOO WEEKLY STOCK PRICE CHART



Travelzoo fell almost \$40 during August and September before consolidating mostly in the high \$20s and low \$30s.

FIGURE 6: RESCALED TRAVELZOO WEEKLY CHART



Travelzoo's rescaled weekly bars show the stock was more volatile than our benchmarks.

than 5 percent of your highest-risk trading group. The best way to protect yourself from unknown factors is to limit the size of each trade.

Focusing on volatility

Notice this analysis does not refer at all to the *direction* of price changes; it is based solely on the *magnitude* of price changes as measured by weekly range. If you have a reliable way to predict the direction of stock movement, you should use that instead.

For more of a pure volatility play, consider buying a straddle (a long put and long call with the same expiration and strike price), in which money can be made if the stock makes a big move either way. (But in that case, you must look at the pricing of the put options.)

Finally, notice this analysis did not use any fancy mathematics. “Key concepts” on p. 78 includes many of the technical option terms and ideas touched upon in this article, but focusing on volatility does not mean you have to abandon your common sense.

This sound, sensible method for analyzing stock volatility and hunting for option bargains is easy to get your head around. When you buy an option, you are buying a chance to reap a large percentage gain relative to a small initial investment. A more volatile stock gives you a better chance for each dollar at risk. It's that simple. ♦

For information on the author, see p. 6.