

Exploiting durable inefficiencies in the equity options market

From the Field



Key Insights

- Covered call writing presents a differentiated path to attractive risk-adjusted returns potential.
- We believe that there is often overestimation of future volatility by market participants that creates persistent overcompensation for selling call options.
- By using single-name covered call writing on a basket of lower-beta stocks, we can pursue higher yields while managing downside risks.

Our approach as active managers is to try to add value in a variety of ways, from fundamental research to quantitative analysis to a superior asset allocation mix. One of the core tenets of our approach to active management is identifying and exploiting what we believe to be durable market inefficiencies—that is to say, market segments where the price of an asset doesn't correctly reflect its value. In this piece, the last of a three-part series, we examine a selection of these inefficiencies.

Selling volatility

A call option gives the buyer of the option—the long position—the right to buy a stock at a predetermined strike price for a specific period of time. If the price of the stock exceeds the strike price, the option is said to be in the money, and the

option seller—the short position—can be forced to sell the stock at the strike price, receiving less than could be received at the current market value. In exchange for this forgone upside, the seller receives payment for the option, called a premium. If the stock's price does not exceed the strike price at expiration, it is said to be out of the money and so will expire without being exercised. In that circumstance, the seller in a covered call strategy retains both the stock and the premium.

An investor might believe, for instance, that there could be a catalyst that sends the share price of a particular stock significantly higher. By buying the call option, that investor purchases the potential to participate in the upside of the stock without having to take a long position and pay the full share price. Thus, the potential for volatility creates a market.



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The premium the seller receives for a call option is directly tied to the implied volatility of the underlying stock. And higher perceived volatility leads directly to higher received premiums for those willing to write the options.

We believe market participants often overestimate the future risk or volatility of specific securities, and, therefore, short call positions tend to be overcompensated for realized risk over time. This overcompensation is known as the volatility risk premium, and it is a differentiated source of excess returns we seek to capture through our covered call writing strategy in the Capital Appreciation Fund and the Capital Appreciation and Income Fund that we manage.¹

Mispriced volatility

The CBOE S&P 500 BuyWrite Index represents a covered call strategy that is long the S&P 500 Index and has written calls against the entire benchmark. We believe this approach of overwriting the entire benchmark, employed by

some asset managers, is operationally simpler but ultimately inferior. This differs materially from how we employ our covered call strategy.

Since the S&P 500 is a diversified index, volatility is inherently dampened relative to a single stock. A covered call strategy on the entire benchmark will result in a lower implied volatility for the corresponding at the money call option and, therefore, a lower premium. Conversely, writing individual stock call options against a basket of equities, which will inherently have a higher implied volatility, demands a relatively higher premium.

Being selective

When we write a covered call, we are placing a cap on the appreciation of the share price that we can participate in. Over time, we find this approach has tended to improve risk-adjusted returns. By taking an active approach to writing call options, we can write options only on those stocks we believe to be less volatile compared to other stocks. A call option written against

a less volatile stock may be less likely to expire in the money or, if it does, may have appreciated to the point where we would look to actively manage our position size. And by capturing the premium when we write the option, we offset some of the downside risk for those names.

Moreover, our analysis demonstrates that risk-adjusted returns were better for calls written against lower-risk stocks than for higher-risk stocks at a variety of strike prices (Figure 1). Over the same time period, calls written against this basket of lower-risk stocks generated better risk-adjusted returns than the CBOE S&P 500 BuyWrite Index. We think this demonstrates the opportunity to generate better risk-adjusted returns through an actively managed, selective approach.

Strike price matters

Just as our approach to writing covered calls on an actively selected basket of stocks differs from some of our competitors, so too does our approach to the strike price at which we write options.

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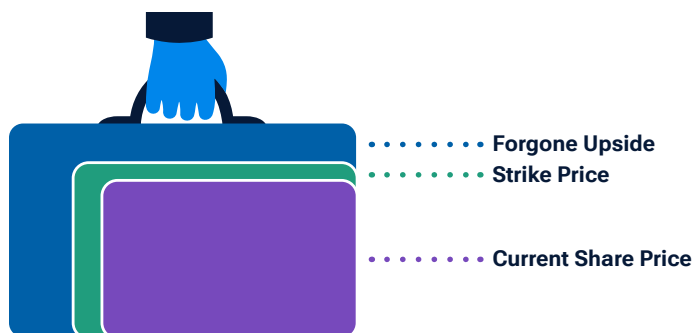
(Fig. 1) Return/risk ratio of covered call options by risk and moneyness, 2000–2025

Return/Risk Ratio	ATM	5% OTM	10% OTM	15% OTM
Low Risk	0.70	0.66	0.72	0.74
High Risk	0.31	0.27	0.27	0.28
CBOE S&P 500 BuyWrite Index	0.50			

As of January 31, 2025.
Past performance is not a guarantee or a reliable indicator of future performance. For illustrative purposes only and not representative of any T. Rowe Price product. Low- and high-risk categories represent the lowest quintile and highest quintile of S&P 500 constituents, sorted by 1-year beta. 1-year beta is the estimated volatility of a security relative to an index over a 1- year period, based on historical data. A beta of less than one means lower volatility than the index; more than 1 means greater volatility. The quintiles are reconstituted annually. We then attain available 1- year American call options pricing/premium data from exchanges for each S&P 500 constituent, for at the money (ATM), 5% OTM (out the money), 10% OTM and 15% OTM. At the money means the strike price and the market price were the same at the beginning of each 1 year period. The percentages represent how low percentage-wise, the current strike price was relative to the market price at the beginning of each one year period. Return is based on share price appreciation, capped at the strike price of the call option, dividends paid on the stock, and the premium for writing a call option, collectively for the securities in the low risk and high risk buckets. Risk is based on standard deviation and based on daily data. Return figures are based on annualized average monthly returns. Share price and dividend returns for stocks are calculated on a standard basis. All options are listed options and are priced daily. **This data shown is that of index and historical market data only, and does not reflect performance an actual investment. Performance of an actual investment may differ significantly. Data does not reflect management fees or other expenses investors would likely incur.** Data reflect the period of January 1, 2000–January 31, 2025. Moneyness is the relationship between an asset’s current price and the strike price of an option. It describes whether an option is in the money, out of the money, or at the money. ATM means at the money. OTM means out of the money. The CBOE S&P 500 BuyWrite Index is designed to measure the total rate of return of a hypothetical “covered call” strategy applied to the S&P 500 Index. It is based on returns of the S&P 500 Index and assumes a succession of one month, at-the-money call options on the S&P 500 Index listed on the CBOE Options Exchange are sold against it. **Index performance is for illustrative purposes only and is not indicative of any specific investment. Investors cannot invest directly in an index.**
Source: CBOE Exchange, S&P Global, Analysis by T. Rowe Price Investment Management

We believe a strategy that writes calls at (or just out of) the money is an inferior approach because, despite generating larger premiums, it sacrifices too much potential for capital appreciation.

Our approach is to write covered calls a bit further out of the money, which we think strikes an optimal balance between preserving the potential to participate in capital appreciation while still receiving an attractive premium.



For illustration purposes only.

Durable inefficiency

In the Capital Appreciation Fund and Capital Appreciation and Income Fund, writing covered calls is a purposeful enhancement to our investment process and a key source of potential alpha. Some of the durable inefficiencies we focus on have a number of contributing causes, while others are driven by one powerful factor. In the case of writing covered calls, we think this inefficiency has continued to exist because, in general, market participants dislike volatility and are willing to pay a premium for “insurance” to help protect against downside and upside risks. Persistent *fear of missing out* on the upside results in a mispricing of call options where investors tend to overestimate upside risk. This demand inflates the price for call options, and this is observed in the underlying asset having realized volatility that is lower than the volatility implied by the call option price.

² A credit spread is the difference in yield between two debt securities with the same maturity but different credit ratings.

Working in concert

We believe the benefits of our covered call strategy are enhanced when combined with other elements of the funds we manage. For instance, investing in high yield bonds and covered calls in the same portfolio creates an opportunity to adjust allocations in pursuit of strong risk-adjusted returns in different market environments.

High yield bonds and covered calls have a similar payoff structure. In high yield, investors seek a return from the risk-free rate (the theoretical return expected from an investment that carries no risk) plus the credit spread² for taking on default risk. Similarly in writing covered calls, investors can pursue a return from the dividend yield of a stock in addition to the option premium. When credit spreads are tight and investors are not as highly compensated for credit risk beyond the “risk-free” rate, writing covered calls provides a different opportunity to pursue attractive risk-adjusted returns and yield. Additionally, writing covered calls provides another source of distribution not directly correlated with rates or dividend yields.

Confidently contrarian

As portfolio managers, we are willing to go against consensus, question commonly held assumptions, and follow through on our research and process. Strategically writing covered calls offers one such opportunity to go against the grain and pursue attractive risk-adjusted returns in an area we think the market underappreciates and misunderstands. Through fundamental research, taking a longer view, and asking the right questions, we are committed to uncovering opportunities that can add value for our shareholders.

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Call 1-800-225-5132 to request a prospectus or summary prospectus; each includes investment objectives, risks, fees, expenses, and other information you should read and consider carefully before investing.

The T. Rowe Price Capital Appreciation Fund and Capital Appreciation and Income Fund share the same lead portfolio manager and investment research process. However, the funds' implementation of the research process varies including, but not limited to, differences in product structure, asset allocation, trading, and fees and expenses. There is no guarantee that the funds will perform similarly in any market environment. Review the prospectuses for detailed information on the funds' strategy, fees, and risks.

Risks: All investments are subject to risks, including the possible loss of principal.

Capital Appreciation Fund: The fund is subject to the inherent volatility of common stock investing. The value approach carries the risk that the market will not recognize a security's intrinsic value for a long time or that a stock judged to be undervalued may actually be appropriately priced. Because of the fund's fixed-income holdings or cash position, it may not keep pace in a rapidly rising market. The use of options subjects the fund to additional volatility and potential losses.

Capital Appreciation and Income Fund: The fund is subject to the inherent volatility of common stock investing. Fixed income securities are subject to credit risk, liquidity risk, call risk, and interest-rate risk. As interest rates rise, bond prices generally fall. The use of options subjects the fund to additional volatility and potential losses.

Derivatives may be riskier or more volatile than other types of investments because they are generally more sensitive to changes in market or economic conditions; risks include currency risk, leverage risk, liquidity risk, index risk, pricing risk, and counterparty risk.

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