



Covered Calls And Their Unintended Reversal Bet

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AQR Capital Management, LLC

Two Greenwich Plaza

Greenwich, CT 06830

p: +1.203.742.3600 | w: aqr.com

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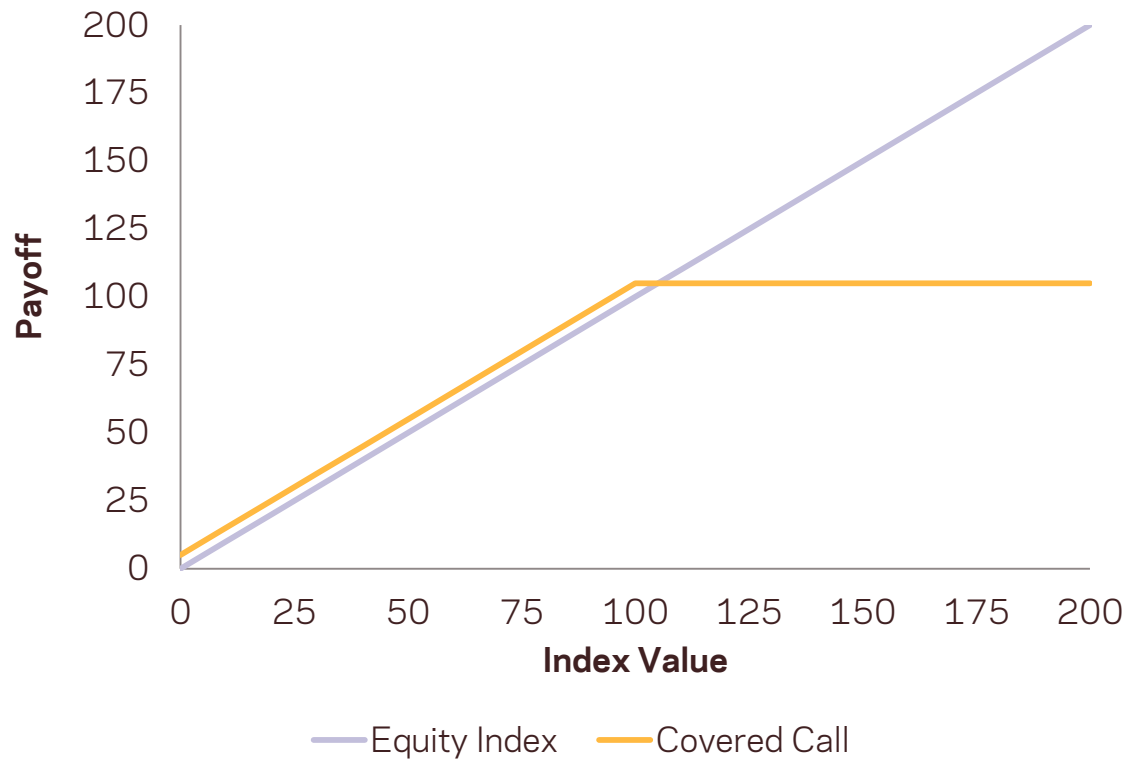
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What Are Covered Calls?

Non-Linear Exposure to Index Value

Payoff at Expiration



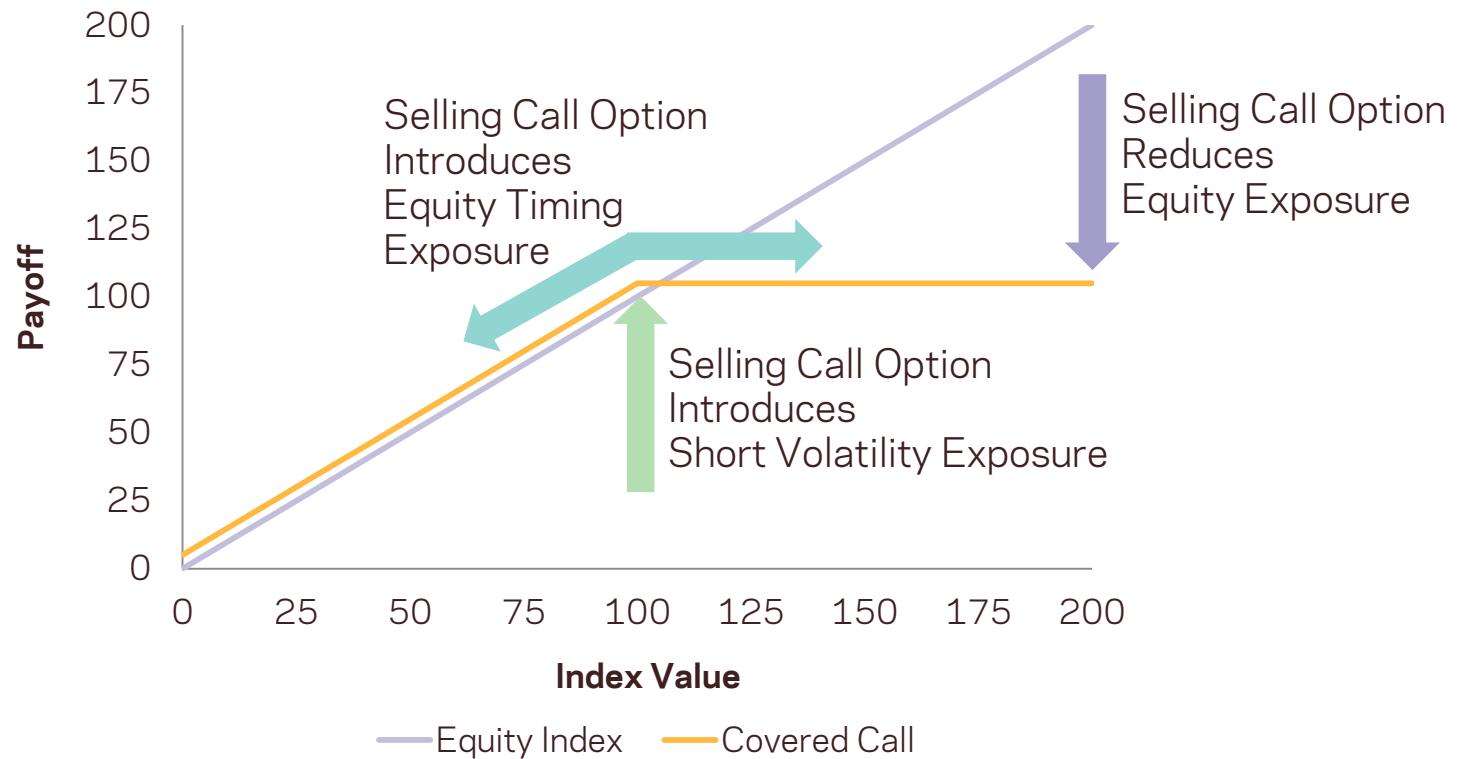
Source: AQR. For illustrative purposes only. Please read important risk disclosures in the Appendix.



What Are Covered Calls?

Covered Calls Alter Three Portfolio Characteristics

Payoff at Expiration

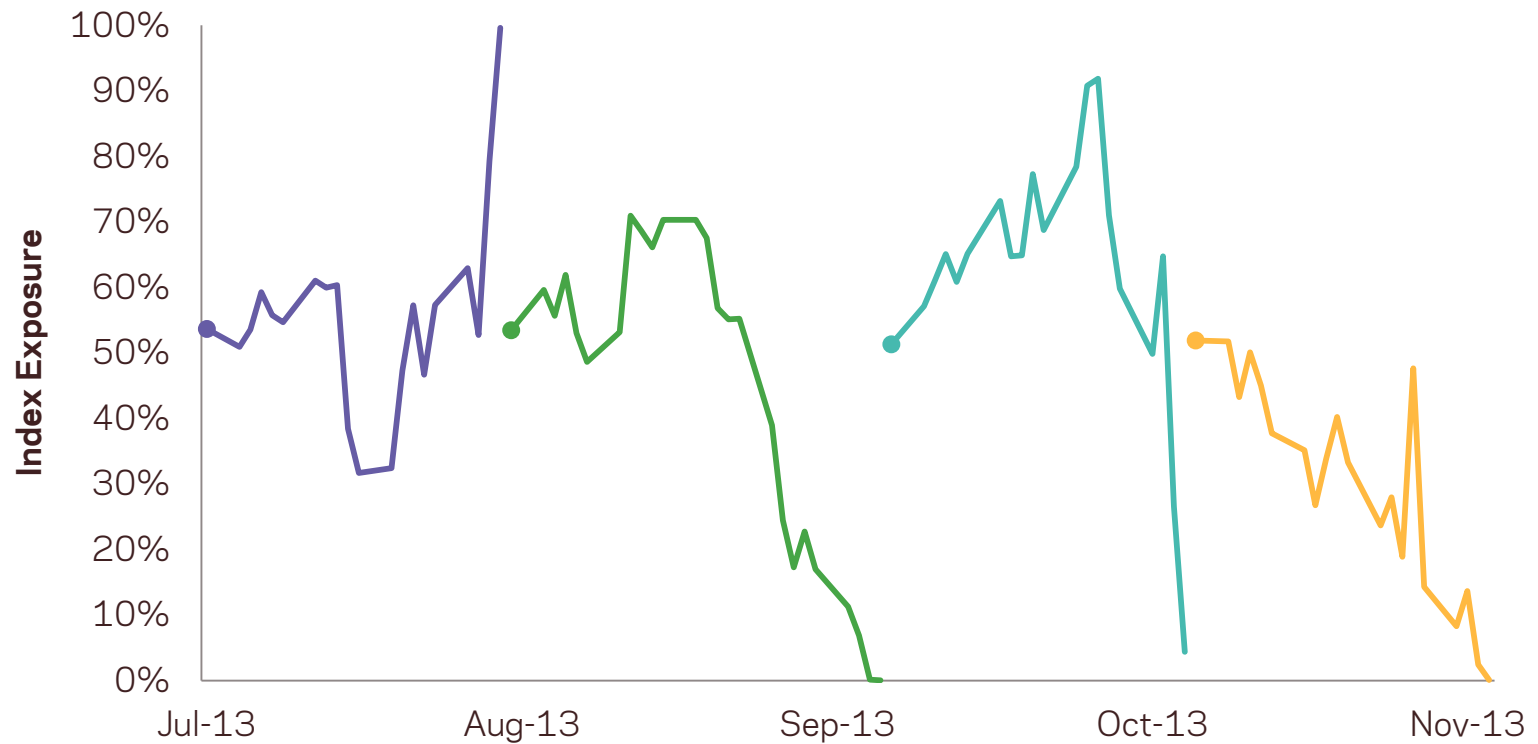


Source: AQR. For illustrative purposes only. Please read important risk disclosures in the Appendix.



Timing Bet Grows as Time Passes ... and Then Resets

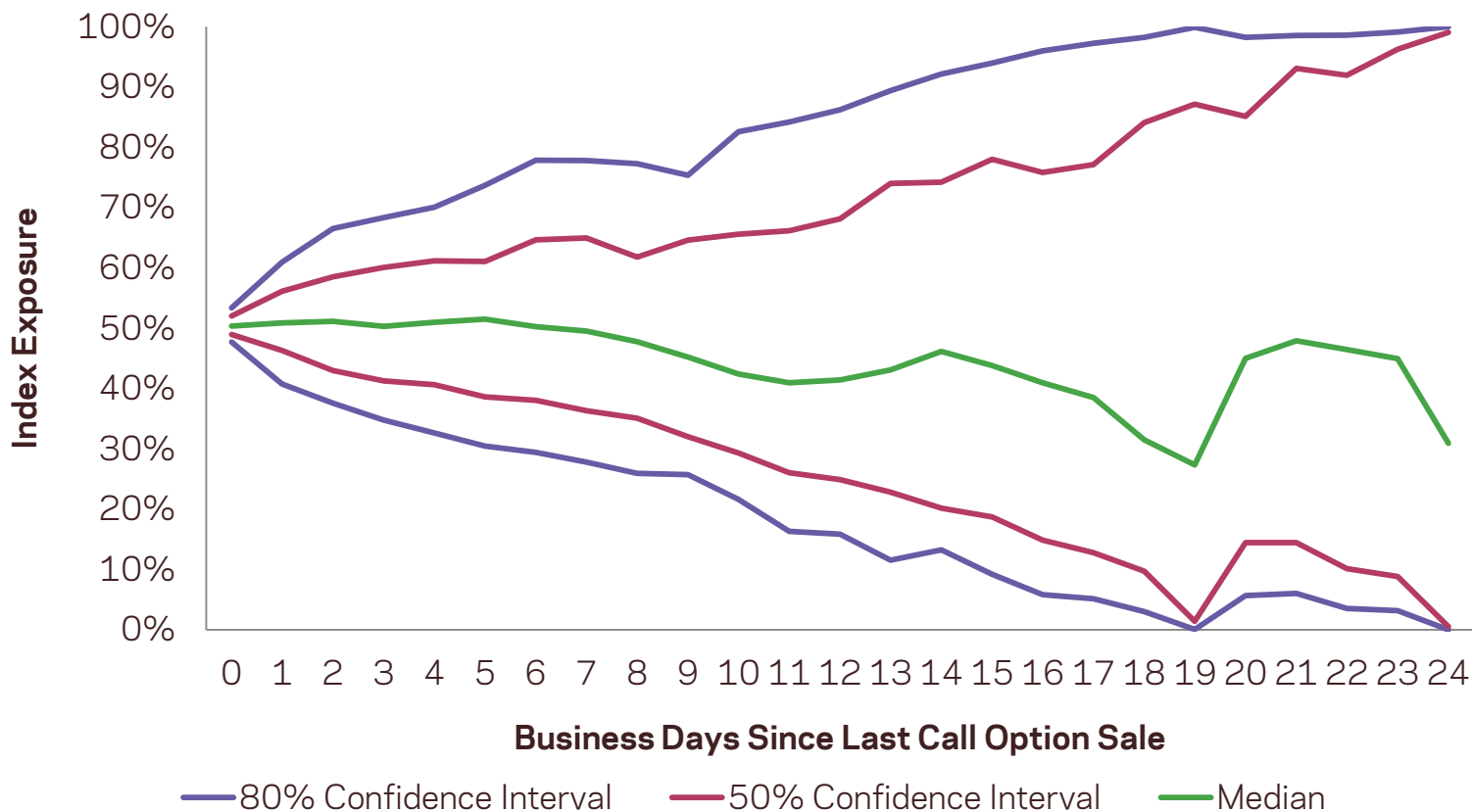
Example: S&P 500 Index At-the-Money Covered Call



Source: AQR. Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. Index exposures are calculated according to the Black Scholes model. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto.

Active Index Exposure May Be Significant

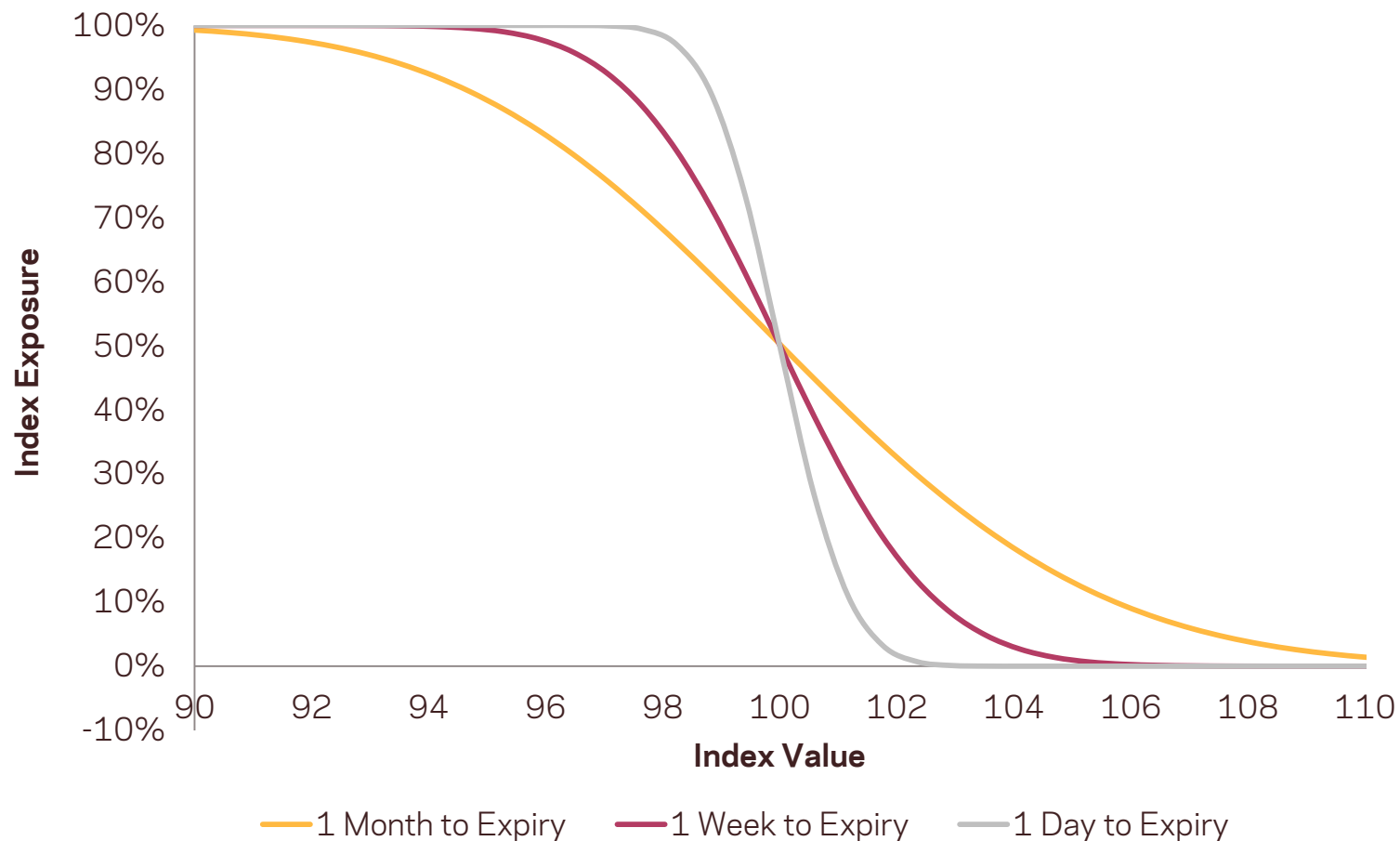
Example: S&P 500 Index At-the-Money Covered Call



Source: AQR. Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. Index exposures are calculated according to the Black Scholes model. Charts and statistics are based on the period from March 25, 1996 to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto.

A Covered Call Bets on Equity Reversals

Exposure to Reversal Increases as Expiration Nears

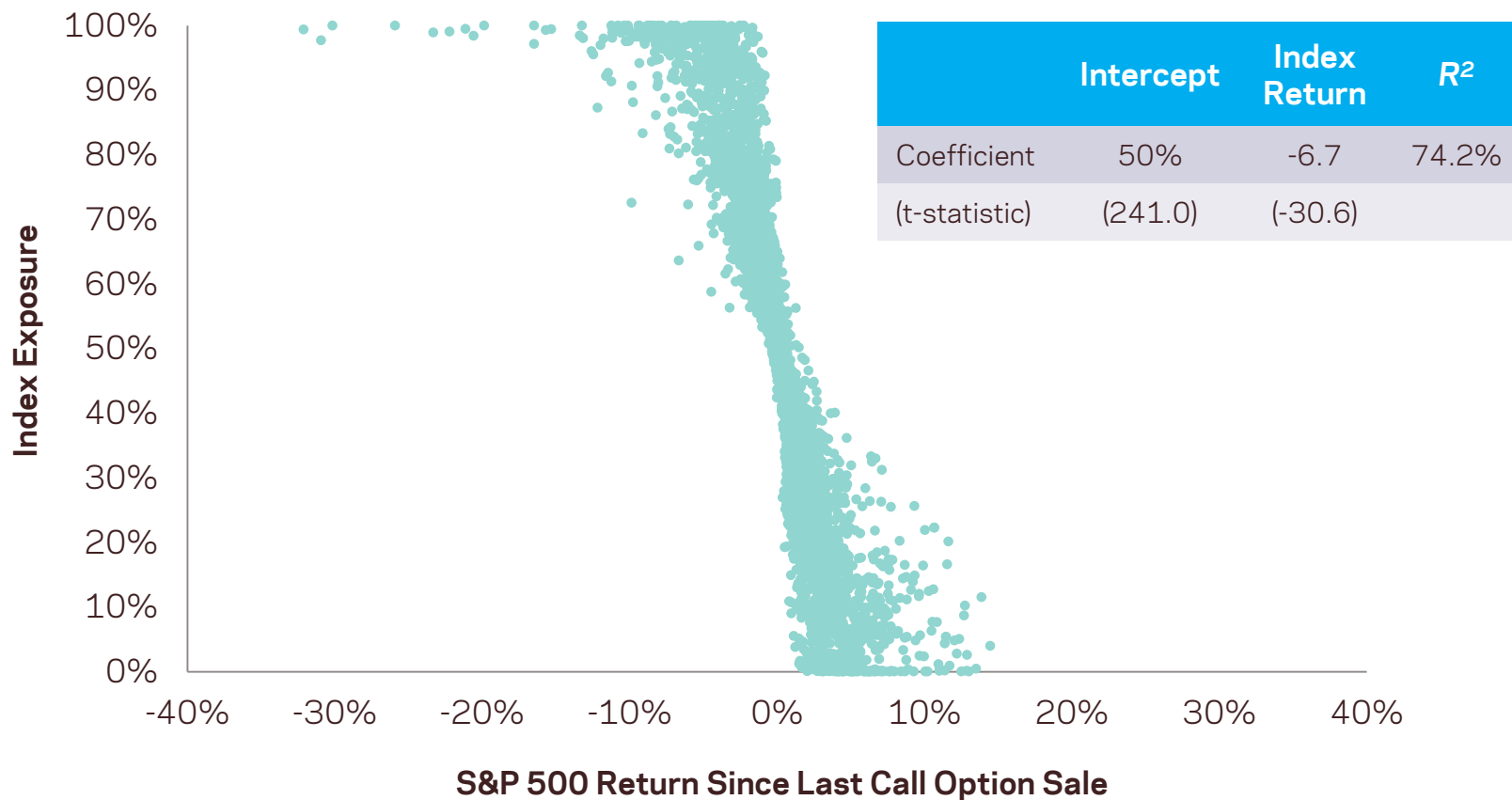


Source: AQR. For illustrative purposes only. Please read important risk disclosures in the Appendix.



A Covered Call Bets on Equity Reversals

We Compare Index Exposure to Historical Index Returns



Source: AQR. Returns are for the period from March 25, 1996, to December 31, 2013. Regression is estimated over the same period. The t-statistics estimated for the two regression coefficients are obtained using the bootstrap resampling technique due to the unusual overlapping nature of the data. Past performance is not a guarantee of future returns. Please read important risk disclosures in the Appendix.

Does Active Exposure Forecast Equity Index Returns?

Regression Indicates No Statistical Significance

Cumulative Returns of Hypothetical Reversal Component



	Intercept	Active Equity Exposure	R^2
Coefficient	2.6 bps	5.6 (bps)	0.01%
(t-statistic)	(1.4)	(0.6)	

Source: AQR. Returns are for the period from March 25, 1996, to December 31, 2013. Regression is estimated over the same period. The t-statistics estimated for the two regression coefficients are obtained using the bootstrap resampling technique due to the unusual overlapping nature of the data.

Reversal component of the Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. The replicated BuyWrite Index differs from the CBOE S&P 500 BuyWrite Index because the CBOE Index writes new call positions on expiry dates using VWAP of intraday prices and our replicated index writes new call positions using reported closing midpoint prices.

Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto

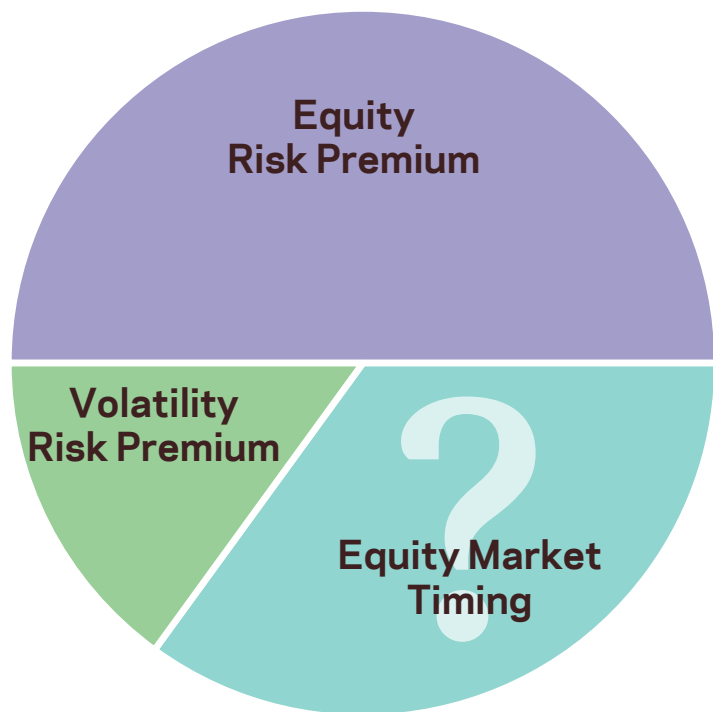


Investment Philosophy

AQR Seeks to Reduce Exposure to Uncompensated Risks

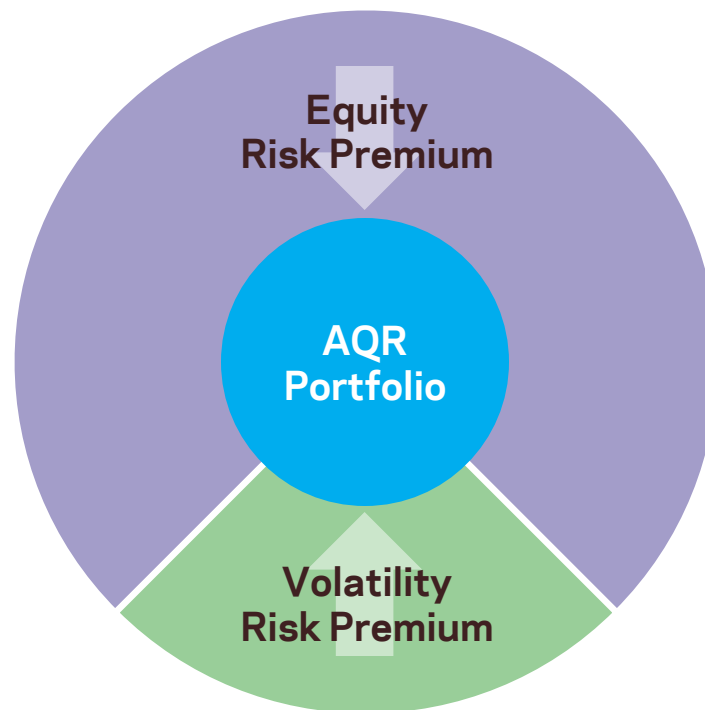
Typical Covered Call Approach

Multiple risks
embedded in one portfolio



AQR Approach

AQR seeks to eliminate unintended risks
and target intended risks



Source: AQR. For illustrative purposes only. Please read important disclosures in the Appendix.



Investment Philosophy

AQR Seeks to Reduce Exposure to Uncompensated Risks

Typical Covered Call Approach (Simulations)

Multiple risks
embedded in one portfolio

	Total ¹	Equity Risk Premium	Volatility Risk Premium	Equity Market Timing
Annualized Excess Return	5.7%	3.2%	1.9%	0.6%
Annualized Volatility	11.6%	8.3%	2.0%	4.9%
Sharpe Ratio	0.50	0.39	0.95	0.12

AQR Approach (Simulations)

AQR seeks to eliminate unintended risks
and target intended risks

	Total	Equity Risk Premium	Enhanced VRP
Annualized Excess Return	5.8%	3.2%	2.6%
Annualized Volatility	9.3%	8.3%	2.1%
Sharpe Ratio	0.62	0.39	1.25

Source: AQR. Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. AQR's Approach is a proprietary AQR backtest, gross of transaction costs, in excess of short-term interest rates. The results shown do not include advisory fees or transaction costs; if such fees and expenses were deducted the performance would be lower. Statistics are calculated over the period from March 25, 1996, to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix. Past performance is not a guarantee of future results.

¹The replicated BuyWrite Index differs from the CBOE S&P 500 BuyWrite Index because the CBOE Index writes new call positions on expiry dates using VWAP of intraday prices and our replicated index writes new call positions using reported closing midpoint prices.



Investment Philosophy

Potential Benefits to Investing in Covered Calls

Potential Benefits to Covered Calls

- Collect equity risk premium
- Collect volatility risk premium
- Achieve equity-like returns with lower volatility

Potential Benefits to AQR Approach

- Targeted allocation to equity and volatility risk premia
- Removal of unintended equity market timing exposure
- Robust portfolio management of options exposures

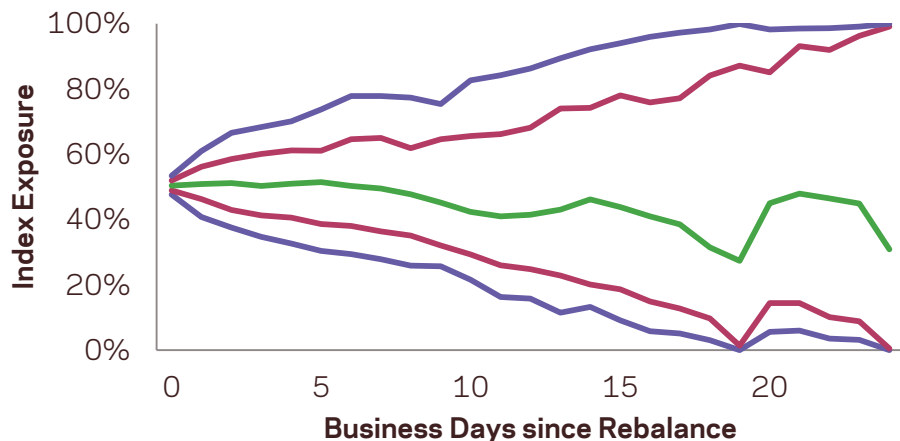


Investment Approach

Managing Equity Risk Premium Exposure

Typical Covered Call Approach (Simulations)

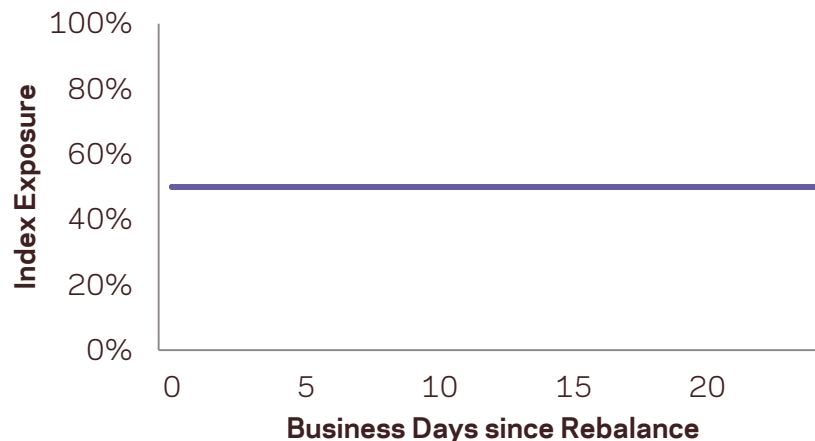
Exposure to market timing is higher as expiration nears



— 80% Confidence Interval — 50% Confidence Interval
— Median

AQR Approach (Simulations)

Through daily hedging, AQR maintains a constant equity exposure



— 80% Confidence Interval — 50% Confidence Interval
— Median



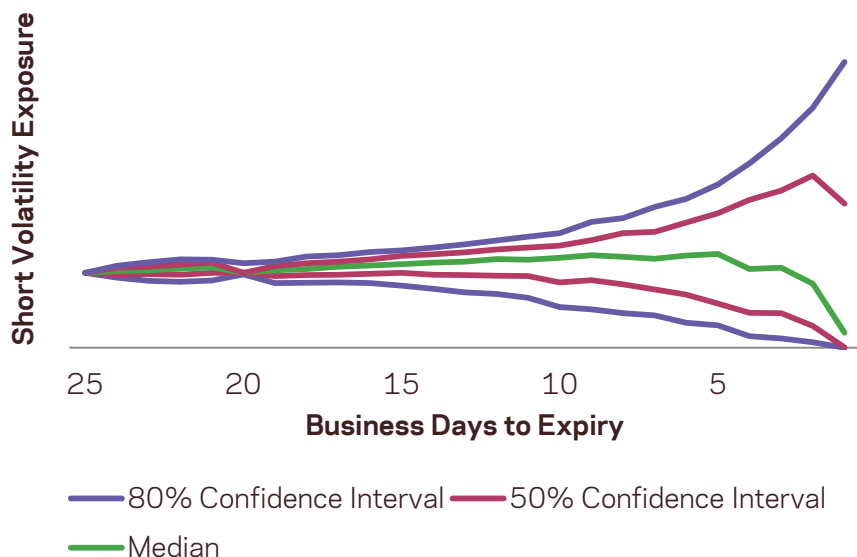
Source: AQR. Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. Index exposures are calculated according to the Black-Scholes model. AQR's Approach is a proprietary AQR backtest. Charts and statistics are based on the period from March 25, 1996, to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix.

Investment Approach

Managing Volatility Risk Premium Exposure

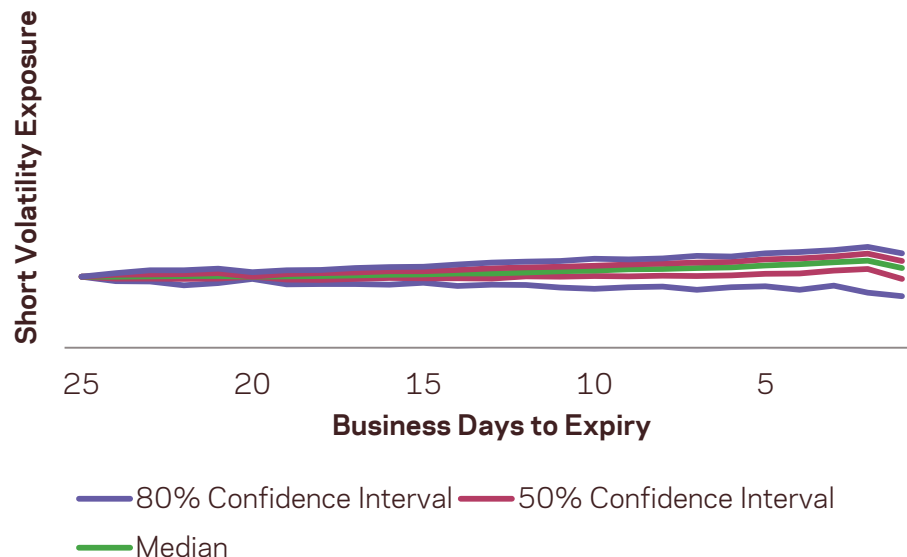
Typical Covered Call Approach (Simulations)

Volatility risk premium exposure varies significantly



AQR Approach (Simulations)

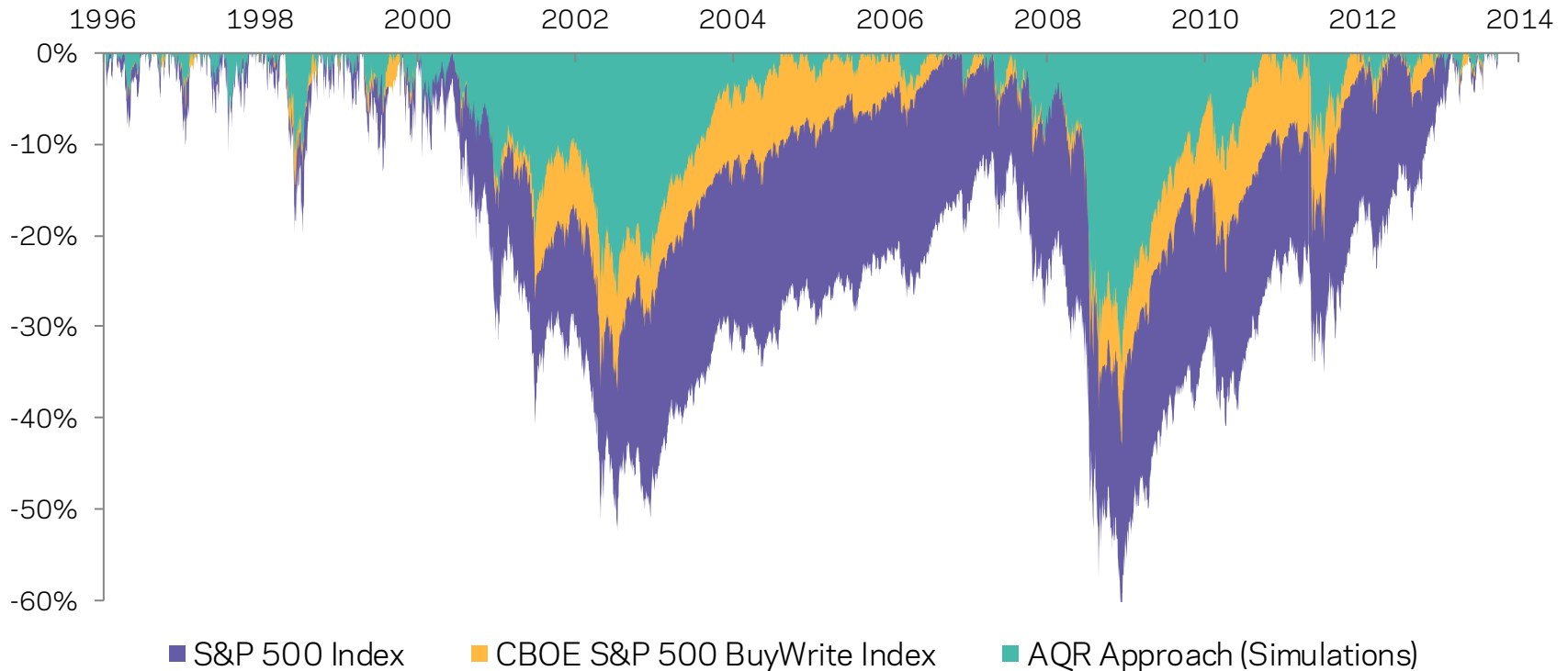
Volatility risk premium exposure is more stable due to portfolio construction of options positions



Source: AQR. Typical Covered Call Approach is an AQR backtest replicating the CBOE S&P 500 BuyWrite Index. Gamma exposure is calculated according to the Black-Scholes model. AQR's Approach is a proprietary AQR backtest. Charts and statistics are based on the period from March 25, 1996, to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix.

Portfolio Characteristics

AQR Approach Had Smaller Drawdowns in Simulated Performance



Sources: S&P 500 Index, CBOE S&P 500 BuyWrite Index, and AQR's Approach is a proprietary AQR backtest, gross of transaction costs, in excess of short-term interest rates. Charts are based on the period from March 25, 1996, to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix.

Portfolio Characteristics

Seeks Equity-Like Returns With Lower Risk

	S&P 500	CBOE S&P 500 BuyWrite Index	AQR Approach (Simulations)
Annualized Log Excess Return	4.4%	3.8%	5.1%
Annualized Volatility	16.7%	11.6%	9.3%
Sharpe Ratio	0.26	0.33	0.55
Maximum Drawdown	-61.7%	-43.0%	-34.0%

	S&P 500	CBOE S&P 500 BuyWrite Index	AQR Approach (Simulations)
Correlation to S&P 500		0.90	0.98
Beta to S&P 500		0.64	0.54
Alpha to S&P 500		0.7% (t=0.6)	2.3% (t=5.3)
Tracking Error to S&P 500		9.1%	9.3%

	S&P 500	CBOE S&P 500 BuyWrite Index	AQR Approach (Simulations)
Alpha to CBOE BuyWrite Index	-0.7% (t=0.6)		2.3% (t=2.3)
Tracking Error to CBOE BuyWrite Index	9.1%		5.8%

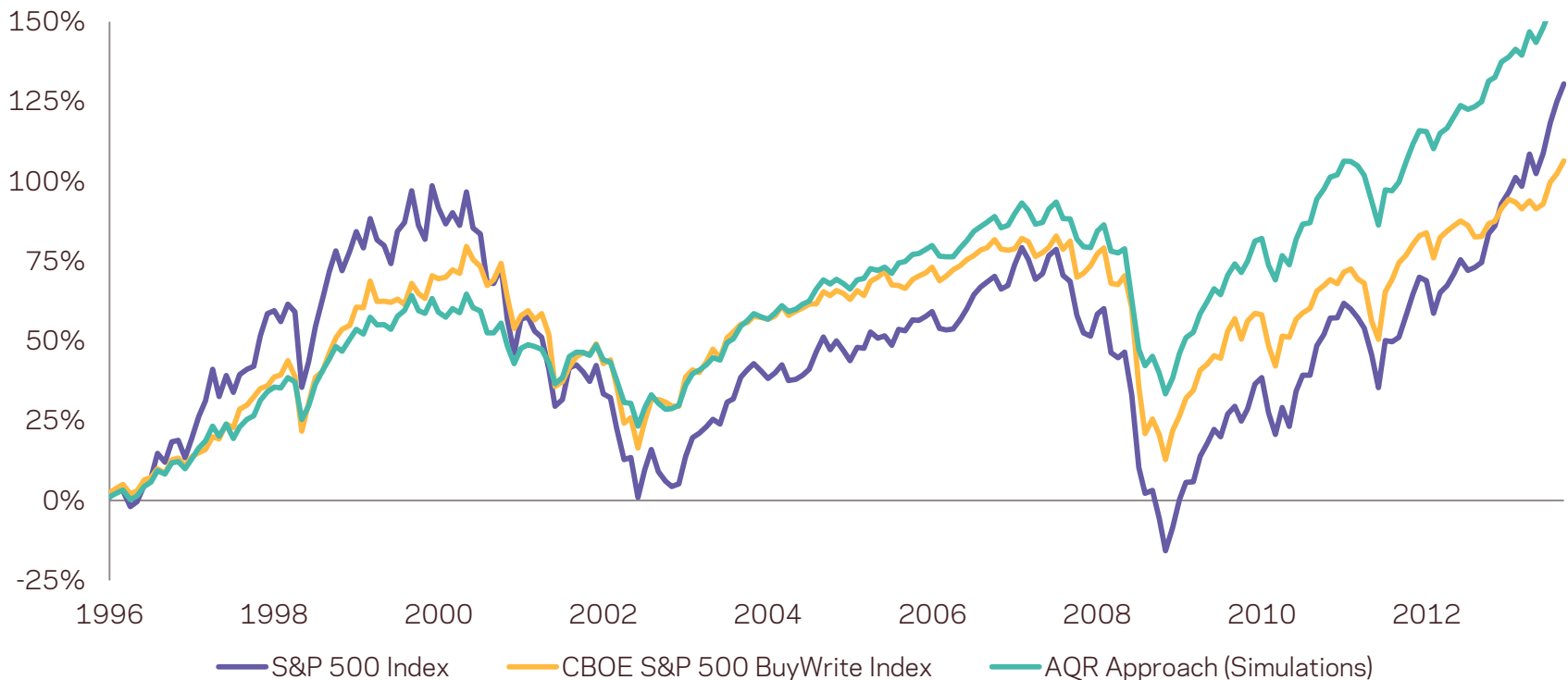


Source: S&P 500 Index, CBOE S&P 500 BuyWrite Index, and AQR's Approach is a proprietary AQR backtest, gross of transaction costs, in excess of short-term interest rates. The results shown do not include advisory fees or transaction costs; if such fees and expenses were deducted the performance would be lower. Charts are based on the period from March 25, 1996 to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix. Past performance is not a guarantee of future results.

Portfolio Characteristics

Seeks Equity-Like Returns With Lower Risk

Cumulative Returns



Source: S&P 500 Index, CBOE S&P 500 BuyWrite Index, and AQR's Approach is a proprietary AQR backtest, gross of transaction costs, in excess of short-term interest rates. The results shown do not include advisory fees or transaction costs; if such fees and expenses were deducted the performance would be lower. Charts are based on the period from March 25, 1996 to December 31, 2013. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix hereto. Please read important disclosures in the Appendix. Past performance is not a guarantee of future results.

Conclusion

AQR Advantage

Experience and Research

- Industry thought leaders
 - Widely published in top academic/professional journals
 - Substantial, practical experience in all aspects of portfolio and risk management
-

Philosophy and Process

- Proprietary enhancements to traditional covered call strategies
 - Unique framework for combining risk premia
-

Implementation and Trading

- Robust process for portfolio optimization and rebalancing
- Direct-to-market, liquidity-providing execution capabilities; low transaction costs
- Risk management integral to the investment process



Conclusion

Relevant AQR Papers



Covered Calls and Their Unintended Reversal Bet

Roni Israelov, Ph.D.

Vice President

Lars N. Nielsen

Principal

May 2014

Equity index covered calls have historically provided attractive risk-adjusted returns largely because of their joint exposures to the equity and volatility risk premia. However, they also embed an exposure to an uncompensated risk, a naïve equity market reversal strategy. This paper provides evidence that the reversal exposure is responsible for about one quarter of the covered call's risk, but provides very little reward.

AQR Capital Management, LLC
Two Greenwich Plaza
Greenwich, CT 06830

p: +1.203.742.3500
f: +1.203.742.3100
w: aqr.com



Seven Myths and One Fact about Covered Calls

Roni Israelov, Ph.D.

Vice President

Lars N. Nielsen

Principal

May 2014

Equity index covered calls continue to be an attractive strategy to investors because they have realized returns not much lower than the index, but with much lower volatility. We dispel a number of myths about covered calls and highlight the source of the strategy's higher risk-adjusted returns: a diversified exposure to the equity and volatility risk premia.

We thank Cliff Annett, Jacob Boudoukh, Aaron Brown, William Cashel, Brian Cressell, Jeff Dunn, Jeremy Detton, Arto Iltonen, Michael Katz, Ari Levine, John Linn, Mark Mitchell, Christopher Palazzolo, Louise Pedersen, Todd Pulvino, Namrata Singhla, Andrew George, and Daniel Wilton for helpful comments and suggestions, and Matthew Klein and Harsha Tummala for data and analysis. We also thank Jennifer Buck for design and layout.

AQR Capital Management, LLC
Two Greenwich Plaza
Greenwich, CT 06830

p: +1.203.742.3500
f: +1.203.742.3100
w: aqr.com



Presenter Biography

Roni Israelov, Ph.D., Vice President

Roni oversees AQR's short-term systematic futures trading strategy and the management of related portfolios. Separately, he also manages AQR's volatility trading strategies. Prior to AQR, he was a research analyst in the quantitative equities strategies group at Lehman Brothers. He shared the Graham & Dodd Award for the paper "International Diversification Works (Eventually)" published in *Financial Analysts Journal*. Roni earned a B.S. in mechanical engineering from Georgia Institute of Technology, an M.S. in mathematical risk management from Georgia State University, and an M.S. in finance and a Ph.D. in financial economics from Carnegie Mellon University.



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Gross performance results do not reflect the deduction of investment advisory fees, which would reduce an investor's actual return. For example, assume that \$1 million is invested in an account with the Firm, and this account achieves a 10% compounded annualized return, gross of fees, for five years. At the end of five years that account would grow to \$1,610,510 before the deduction of management fees. Assuming management fees of 1.00% per year are deducted monthly from the account, the value of the account at the end of five years would be \$1,532,886 and the annualized rate of return would be 8.92%. For a 10-year period, the ending dollar values before and after fees would be \$2,593,742 and \$2,349,739, respectively. AQR's asset based fees may range up to 2.85% of assets under management, and are generally billed monthly or quarterly at the commencement of the calendar month or quarter during which AQR will perform the services to which the fees relate. Where applicable, performance fees are generally equal to 20% of net realized and unrealized profits each year, after restoration of any losses carried forward from prior years. In addition, AQR funds incur expenses (including start-up, legal, accounting, audit, administrative and regulatory expenses) and may have redemption or withdrawal charges up to 2% based on gross redemption or withdrawal proceeds. Please refer to the Fund's Private Offering Memoranda and AQR's ADV Part 2A for more information on fees. Consultants supplied with gross results are to use this data in accordance with SEC, CFTC, NFA or the applicable jurisdiction's guidelines.

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The CBOE S&P 500 BuyWrite Index (BXM) is a benchmark index designed to track the performance of a hypothetical buy-write strategy on the S&P 500 Index. The BXM is a passive total return index based on (1) buying an S&P 500 stock index portfolio, and (2) "writing" (or selling) the near-term S&P 500 Index (SPXSM) "covered" call option, generally on the third Friday of each month. The SPX call written will have about one month remaining to expiration, with an exercise price just above the prevailing index level (i.e., slightly out of the money). The SPX call is held until expiration and cash settled, at which time a new one-month, near-the-money call is written.

The S&P 500 Index is the Standard & Poor's composite index of 500 stocks, a widely recognized, unmanaged index of common stock prices.

