

Illiquidity Premia in the Equity Option Market

A NON-TECHNICAL SUMMARY

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FINANCIAL MARKETS

Standard option valuation models such as Black-Scholes leave no room for option illiquidity premia. Yet a study by Christoffersen et al. ^[1] found that the risk-adjusted return spread for illiquid over liquid equity options is positive for option buyers and highly significant. In this study, Illiquidity premiums are computed using state-of-the-art option illiquidity measures for a large panel of equities, and are robust to different empirical implementations. These findings are consistent with evidence that market makers in the equity options market hold large and risky net long positions in equity options.

In positive net supply markets such as bond or stock markets, it is natural to expect a positive illiquidity premium. In zero net supply derivatives markets, buying and selling pressures not only affect prices and expected returns, they also determine if the illiquidity premium is positive or negative. Market makers absorb net buying or selling pressure and need to be compensated for the costs and risks that this entails. This compensation depends not only on the risk preferences of buyers and sellers, the capital of the market maker, and the stochastic properties of the derivative and underlying securities, but also on the market and search frictions that determine the ease by which the market maker can locate offsetting trades.

Previous research has found that in the equity option market, end-users are net sellers and market makers are net buyers. We therefore expect that in equity option markets, market makers need to be compensated for the costs of being net long equity options by price discounts and higher expected returns, and that the size of the return premium will be partly determined by the illiquidity of the option.

To investigate this prediction, Christoffersen et al. ^[1] construct daily illiquidity measures from a unique new dataset containing intraday option trades and quotes. The study confirms the existence of selling pressures from end-users, and finds that expected option returns increase with illiquidity. The resulting differences in returns are referred to as illiquidity premiums. Proxies for asymmetric information, hedging costs, stock illiquidity and inventory costs were all found to be significant drivers of the option illiquidity measures. These factors, which are often difficult to measure or even observe, thus indirectly determine option returns via the illiquidity premium. However, illiquidity remains an important determinant of returns.

When sorting firms into quintiles based on option illiquidity, the study finds that the option spread portfolio that longs the most illiquid contracts and shorts the least illiquid contracts earns a positive and significant premium across moneyness categories. While the average option return spreads are large, it is important to note that equity option spreads are wide. These results are thus

[1] Christoffersen, P., Goyenko, R., Jacobs, K., Karoui, M. (2016) "Illiquidity Premia in the Equity Options Market", Working Paper

important for market maker inventory management even if they do not imply a profitable strategy after trading costs.

To check the robustness of the results multivariate regressions were run on the option returns controlling for stock volatility and other firm characteristics. An increase in option illiquidity had a positive and significant impact on next period's option returns, confirming the existence of illiquidity premiums in the options market. The effect of illiquidity on option returns in the regressions was substantial.

For a more detailed look at this work, please refer to the full research paper posted on the GRI website.