

## Option Volume and Stock Prices: Evidence on Where Informed Traders Trade

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Controversy exists about the informational content of trading activity. In complete markets, the behavior of a stock price should dictate the price of the option because an option is a derivative security. Prior evidence on market interrelationships is inconclusive as to whether equity or option markets reflect new information earlier. The authors investigate the informational links between option markets and equity markets. Their findings show that, although stock prices typically lead option volumes, option volumes lead stock price changes under certain circumstances. Thus, particular option volumes carry information about future stock price changes.

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Option markets may play a role in impounding information into securities prices. According to the authors' theory, if option markets are venues for information-based trading, various types of option trades should convey information on future stock prices. To test this notion, the authors develop an asymmetric information model in which informed traders may trade in option or equity markets. Informed traders choose where and what to trade based on the profits available, given specific information available. Thus, these informed traders move across markets to equalize profits in each market.

Informed traders choose whether to buy or sell a stock, a put, or a call. For example, a trader informed of good news could benefit from buying the stock, buying a call, or selling a put. These trades

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carry positive information about future stock prices. Also, a trader aware of bad news could sell the stock, sell a call, or buy a put. Because market participants can learn from trades in both markets, option trades should affect the subsequent behavior of the stock market. This hypothesis is true only for information-based trading, not liquidity-based trading, because liquidity-based trading does not change the stock's fundamental value.

This model of multimarket trading permits examination of specific hypotheses about market linkages. For example, the authors hypothesize that option volumes carry information about future stock price changes. They use data from the Berkeley Options Data Base for October and November 1990 to test this hypothesis. Specifically, the sample consists of the first 50 firms ranked according to daily trading volume on the Chicago Board Options Exchange. They examine all option series with at least 50 and 100 trades a day.

Their initial results show that stock price changes seem to lead option volumes and that option trades have little or no information content unless option volumes are sorted using their information-based theory. Decomposing option volume into information-based components shows that option markets are a venue for information-based trading. That is, both positive and negative option volumes have predictive power for stock price movements. Their results also show that option volumes respond to stock price changes with lags of 20–30 minutes but that option volumes affect stock price changes much more rapidly. The evidence suggests that factors other than information influence stock and option market short-term movements.

These findings have several implications. First, option pricing models should allow for multidirectional links from option markets to stock markets. Second, volume plays a role in how markets become efficient. Volume by itself can be informative and is not simply an outcome of a trading process.