

# Does Index Arbitrage Distort the Market Reaction to Shocks?\*

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## Abstract

We show that ETF arbitrage distorts the market reaction to fundamental shocks. We confirm this hypothesis by creating a new measure of the intensity of arbitrage transactions at the individual stock level and using an event study analysis to estimate the market reaction to economic shocks. Our measure of the intensity of arbitrage is the probability of simultaneous trading of ETF shares with shares of underlying stocks estimated using high frequency data. Our approach is direct, and it accounts for statistical arbitrage, passive investment strategies, and netting of arbitrage positions over the day, which the existing measures cannot do. We conduct several empirical tests, including the use of a quasi-natural experiment, to confirm that our measure captures fluctuations in the intensity of arbitrage transactions. We focus on oil shocks because they contain a large idiosyncratic component which facilitates identification of our mechanism and interpretation of the results. Oil shocks are identified using weekly oil inventory announcements.

**Keywords:** high-frequency data, stock market, ETF, arbitrage intensity, oil shock, market efficiency

**JEL classifications:** G12, G14, G23, Q43

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