

Order Imbalance and the Pricing of Index Futures

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Summary

Order imbalance, a proxy for the liquidity of the market, is a measure of the extent of liquidity asymmetry. Positive order imbalance indicates liquidity for the sell side but relative illiquidity for the buy side, because buying is more active than selling. A demand for liquidity from the buy side could spill over to the related futures market; increases in buying pressure on index futures cause the positive basis to widen. Similarly, negative order imbalance indicates poor liquidity for the sell side but improved liquidity for the buy side. The demand from the sell side for liquidity induces greater demand for short futures positions, and drives the basis negative. This study examines whether the aggregate order imbalance for index stocks can explain the arbitrage spread between index futures and the underlying cash index. The study covers the period of the Asian financial crisis and includes wide variations in order imbalance and the index-futures basis. The analysis controls for realistic trading costs and actual dividend payments. The results indicate that the arbitrage spread is positively related to the aggregate order imbalance in the underlying index stocks; negative order-imbalance has a stronger impact than positive order imbalance. Violations of the upper no-arbitrage bound are related to positive order imbalance; violations of the lower no-arbitrage bound are related to negative order imbalance. Asymmetric response times to negative and positive spreads can be attributed to the difficulty, cost, and risk of short stock arbitrage when the futures is below its no-arbitrage value. The significant relationship between order imbalance and arbitrage spread confirms that index arbitrageurs are important providers of liquidity in the futures market when the stock market is in disequilibrium.