Optimized Eurodollar Execution Through Implied Pricing on the Chicago Mercantile Exchange

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Eurodollar futures are contracts linked to future London Interbank Offering Rate (LIBOR) that enable investors to take positions on interest rates. Traded on the Chicago Mercantile Exchange (CME), Eurodollar contracts are listed in the form of base contracts with monthly maturity as well as derived contracts constructed from integer positions in a combination of base contracts. The nature of these derived contracts introduces redundancies in the market which in turn frequently result in inefficiencies in pricing. The CME employs a pricing algorithm that considers listed contracts as well as first generation implied prices created from the combination of listed contracts.

This study explores the possibility of improving market quotes by combining multiple market orders to achieve a desired position. To achieve this goal, an ad hoc optimization technique is developed. Constraints are imposed by the integer nature of the exchange, transaction costs charged by the exchange and clearing houses and available liquidity at a given price level.

A day of CME tick data is analyzed to determine frequency and magnitude of quote improvement using this technique. This analysis support the hypothesis that quote improvements are possible, and in fact indicate that they are quite frequent. In 19% of listed contracts throughout the examined date, this technique found better prices than listed by the CME. These improvements were as large as 2.0 ticks, and averaged 0.4 ticks, a substantial improvement for tick size with real value $12.50. Price improvements were generally observed more frequently in less liquid contracts, perhaps due to market inefficiencies resulting from infrequent trading.

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