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Mysteries of Foreign Exchange Limit Order Books

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Mystery #2: Round Number Preferences

In modern foreign exchange electronic limit order trading platforms, most market resolution parameters are very close to zero. Despite this, there is a clear tendency for market participants to favour round numbers in numerous aspects of trading.

Limit Order Sizes

Limit orders may be submitted up to a resolution of 0.1 units of the base currency, yet fewer than 0.001% of all limit orders arrive with a non-integer size. Furthermore, more than 80% of all limit orders arrive with a size that is an integer multiple of 1,000,000, and there is significant clustering around limit order sizes of 5,000,000 and 10,000,000 units. Integer amounts of one currency do not correspond to integer amounts of the other, so it is unclear as to why such behaviour should be so prevalent.
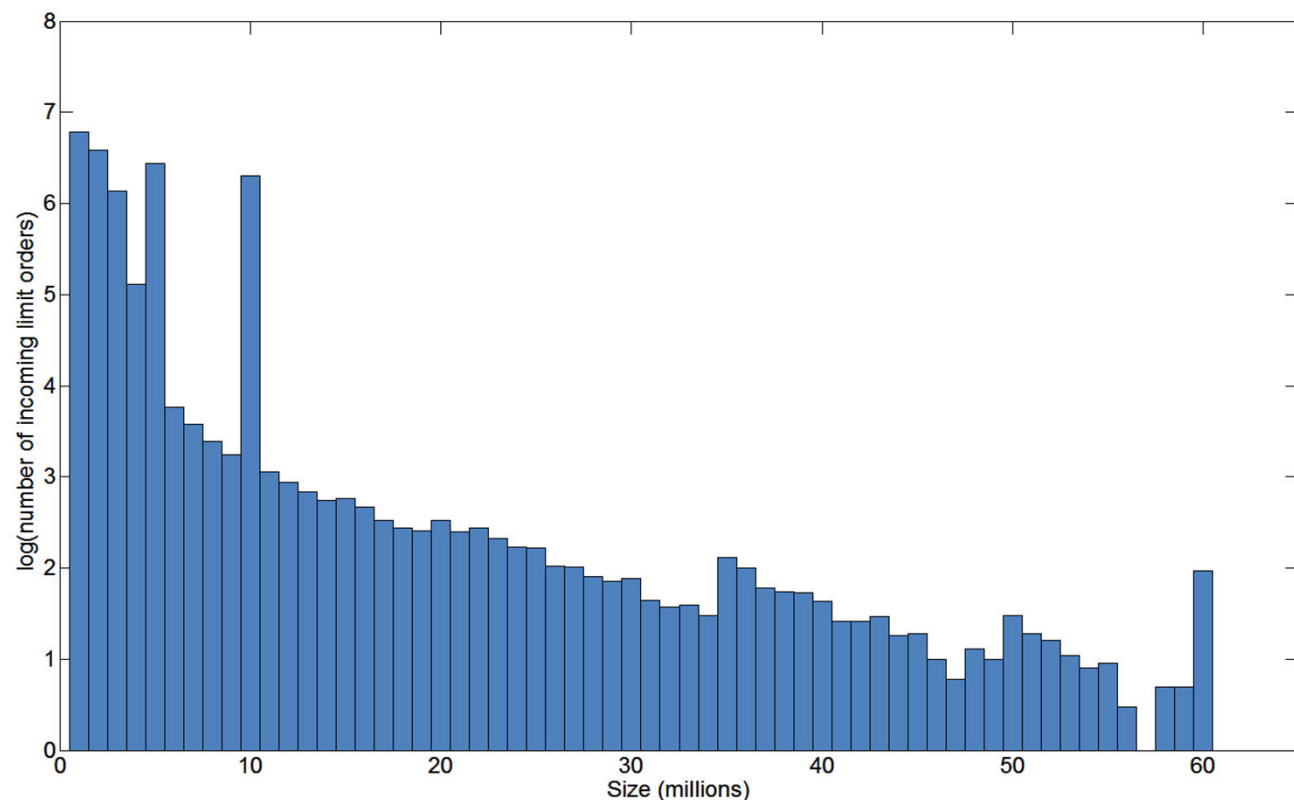

Figure 4: Distribution of size of bid-side limit orders for EURCHF

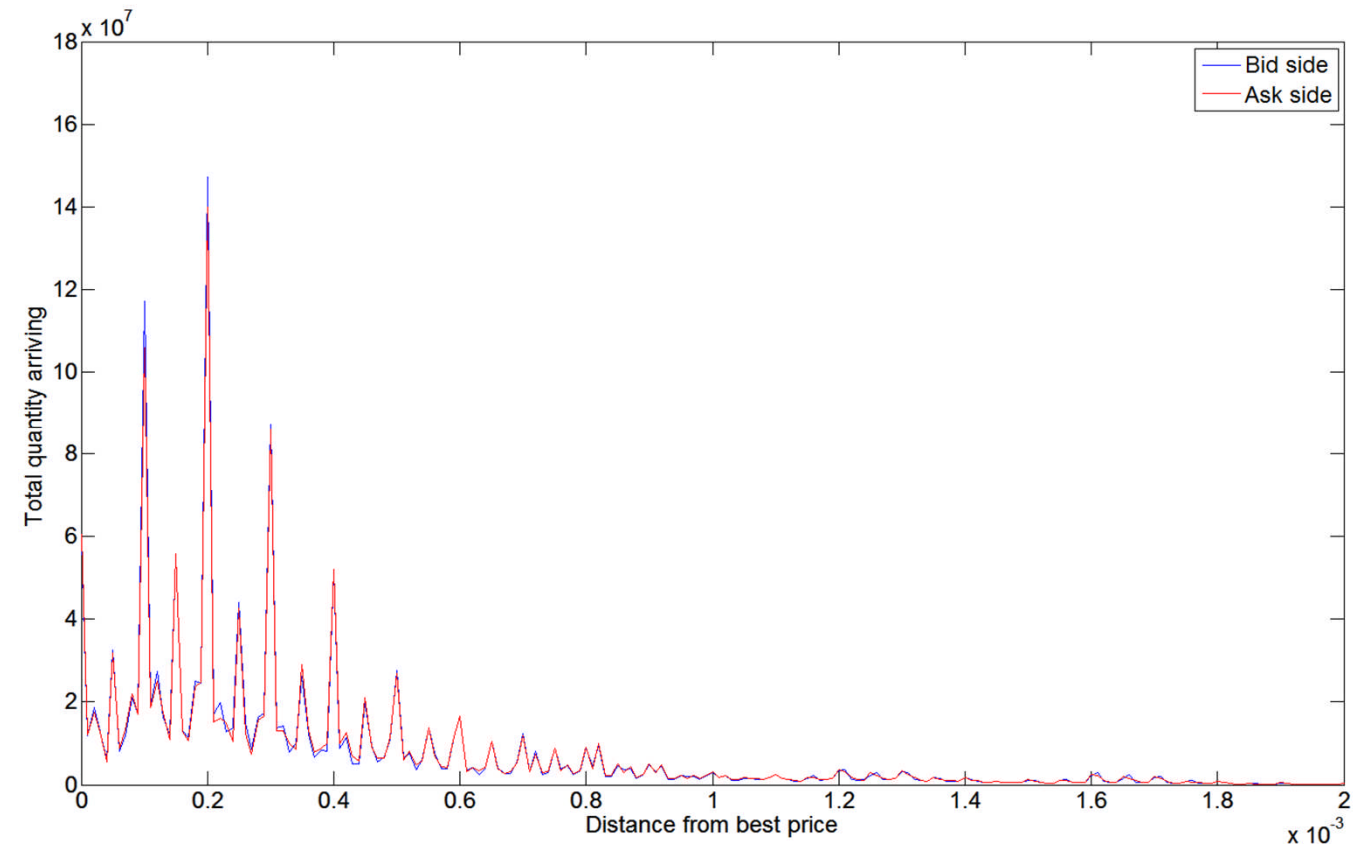## The Average State of The Limit Order Book

Figure 5: The average state of the NZDUSD limit order book

For a limit order to be matched to an incoming market order, it needs to be at the front of the priority queue for its price. Despite this, market participants repeatedly favour round-number prices, even though this puts them at the back of far longer queues than they would need to join if they chose to offer a slightly better price to the market. Assuming that the "time spent" vs "profit earned" tradeoff that market participants are attempting to optimize is smooth, such behaviour is irrational.

Mystery #2: Why do market participants display round-number preferences when doing so appears to be strategically suboptimal?