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An Empirical Analysis of the Limit Order Book and Liquidity Shocks in Livestock Futures Markets

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Agricultural commodity futures were traditionally traded in the open outcry pit, however, over the past decade there has been a major shift to trading on the electronic platform. The open outcry system differs significantly from the electronic system. One major difference is the presence of the limit order book (LOB) in the electronic system, which contains actual bid and ask prices and their corresponding volumes at different levels. Market microstructure research in agricultural commodity markets has been limited to open outcry trading, and in particular, to the study of the difference between the best bid and best ask. However, commodity traders may be interested on ask and bid prices and volumes beyond these best levels. For example, a trader submitting a large order may incur higher transaction costs if their order is not fully executed at the best prices due to insufficient volume at this level and subsequent prices are far from the best ones.

The research aims to (1) estimate the cost of liquidity in the electronic platform for livestock futures markets using all the information contained in the LOB; and (2) assess the effect of liquidity shocks on the LOB. We use a dataset containing all market data messages required to recreate the LOB from the Chicago Mercantile Exchange (CME) Group. Currently there are no livestock futures contracts trading in Canadian futures exchanges, making the CME Group livestock futures the most commonly used. Knowledge of the behaviour of the cost of liquidity is of value to market participants to develop marketing strategies aiming at managing their liquidity risk.

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