High frequency traders aren't the only player in the cattle market "meat casino"

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The live cattle and feeder cattle futures markets face continued scrutiny. Last week, my colleague Eric Belasco highlighted another round of news articles deriding cattle futures as the "meat casino". After the *Wall Street Journal* piece was published, nearby live cattle futures prices dropped eight days in a row, leading at least one commentator to suggest (tongue planted firmly in cheek) that publishing articles on the cattle market leads to price volatility and price declines.

Another commonly blamed culprit for recent gyrations in cattle prices is high frequency trading, or HFT. Both articles Eric cited make mention of these computer traders who rapidly buy and sell futures contracts. Before we can assign blame to HFT, it's worth consider what HFT is and how prevalent it is in cattle markets.

What is HFT?

HFT is a particular type of electronic trading. Beginning in the 1990s, exchanges introduced electronic trading. They used computers to automate the process of matching orders to buy and sell commodities, This transition is analogous to using email, text messaging, or videoconferences to replace a face-to-face meeting. Because of electronic markets, traders could program computers to submit orders to buy or sell. Such algorithmic trading replaced repetitive decision making with a set of decision rules, much like a programmable thermostat regulates temperature in a house. Advances in computing power allowed trading firms to take algorithmic trading to its logical extreme – HFT that makes trading decisions by processing information and generating orders to buy or sell in milliseconds.

It is difficult to comprehensively assess the impact of HFT in a futures market. HFT is defined by the speed at which the trader submits orders to buy or sell, not by the motivation for buying or selling or the effect that trader has on the observed price of the futures contract. Most HFTs hold positions only for a short period of time, hoping to profit from very small movements in price.

HFTs generally prefer actively traded markets where trades occur frequently. When trading is infrequent, prices can move a lot from trade to trade, especially when new information about the value of cattle hits the market. HFTs generally avoid such thinly traded markets because of the risk of being caught on the wrong side of such price swings.

How prevalent is HFT in cattle futures markets?

For these reasons, HFT isn't particularly prevalent in cattle futures markets. Moreover, there is less HFT in cattle futures markets relative to most other agricultural, commodity, and financial futures. It is difficult to classify traders as high-frequency because the identity of the buyer and seller for a given futures trade is not made public. Only the futures exchange and government regulators possess data necessary to identify traders. Earlier this year at the National Cattlemen's Beef Association convention, Chicago Mercantile Exchange chairman Terry Duffy suggested only 10% of cattle futures trading was conducted by high frequency traders.

Even if we adopt a broad definition of HFT, we can see that cattle markets are not a hotbed for HFT relative to other futures markets. Economists at the Commodity Futures Trading Commission (CFTC), the regulator responsible for futures markets, summarized the relative trading volume associated with manually-entered and automated orders to buy or sell. In the CFTC data, automated orders are those "generated and/or routed without human intervention," a wide array of order submission methods that includes HFT algorithms. Using this broad definition, automated trading accounts for about one-third of livestock futures trading, as seen in the table below.

Table: Manual vs. Automated Trading as a Percentage of Total Volume by Market Group

Markets	Automated	Manual	Non-electronic
Agricultural – Livestock	32.4	56.3	11.3
Agricultural – Grain and Oilseed	39.6	55.4	5.6
Agricultural – Dairy	6.8	89.1	4.1
Energy – Crude Oil	54.3	40.2	5.5
Metals – Base Metals	49.2	47.7	3.1
Equities – US Stock Indexes	66.3	33.7	0.9
Currencies – G10 Countries	80.7	16.4	2.8

Source: CFTC, adapted from Haynes and Roberts, 2015, "Automated Trading in Futures Markets".

Compared to markets for other agricultural, energy, and metals commodities, automated trading is relatively rare in livestock markets. Only in dairy futures (where trading volume is lower even than cattle markets) is automated trading less prevalent than for livestock. This is doubly true if we extend the comparison to high trading volume futures markets for US stock indexes like the S&P 500 and for major currencies like the Euro and Japanese Yen. These comparisons suggests positive correlation between trading volume and automated trading activity. This data also show that trades where both the buyer and seller are automated traders account for only about 15% of trading in agricultural markets.

All this suggests that the presence or absence of HFT is a function of trading volume, not the other way around. Cattle markets have a long history of price volatility related to the decreasing number of transactions,

both in the futures and cash markets. (For an example, see William Tomek's classic paper "Price Behavior on a Declining Terminal Market" from the AJAE.) Getting rid of high frequency traders may not eliminate sudden swings due to a lack of transactions, either in the futures market where HFTs are present but relatively rare or in the cash market where HFTs are entirely absent.

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