

Particle physics helps visualize fraud in the form of spoofing

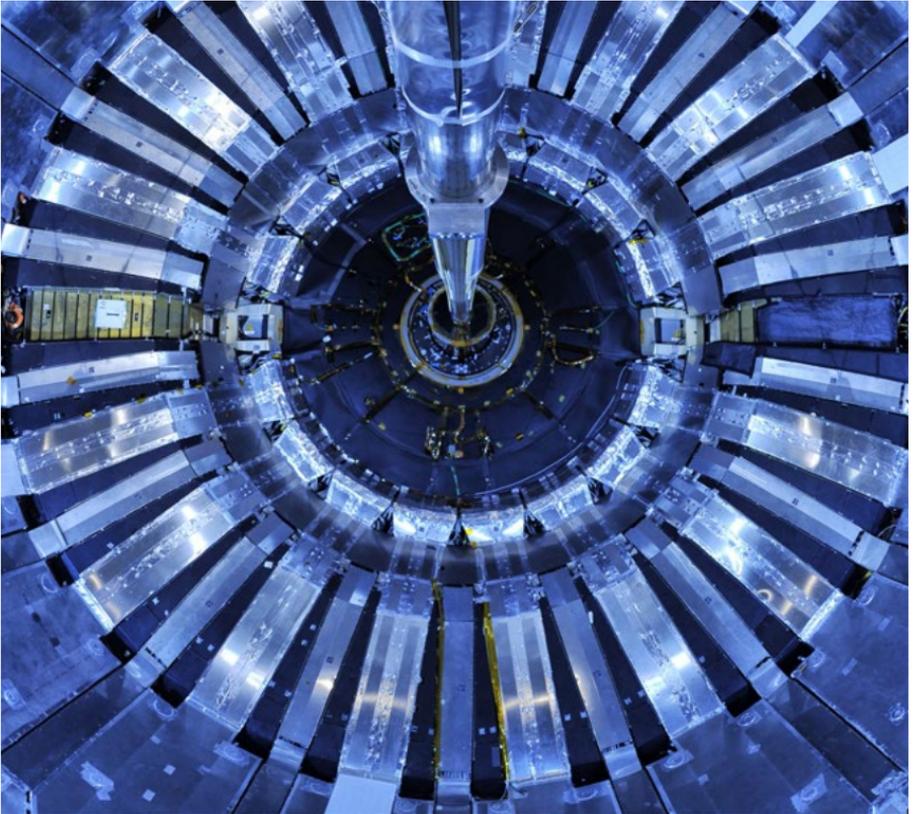


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Researchers from Wageningen and CERN have developed a visualization method that helps dissect manipulation in the form of spoofing in financial markets. This form of market manipulation can be visualized using data analysis techniques borrowed from particle physics.

Spoofing is an illegal way of manipulating financial markets whereby an order is placed without any intention of actually buying or selling. That drives up prices and defrauds other parties. In 2020, one of America's largest banks, JPMorgan, paid a record settlement of 920 million dollars for spoofing in the period 2008 to 2016.

The traditional way of studying markets in detail is to take snapshots in time, explains Marjolein Verhulst of the Marketing and Consumer Behaviour group in Wageningen. 'You take a "photo" of the market every second or minute. Traditional finance research analyses the state of the market this way, but it doesn't show what is

happening between the snapshots.'

The researchers visualized the limit order books for the markets the JPMorgan traders manipulated. Using data analysis techniques borrowed from particle physics, they were able to show what happened between the snapshots.

The ultimate aim of the researchers is to develop methods in which market abnormalities can be detected in real time to combat fraud. In this study, WUR collaborated with the European Organization for Nuclear Research (CERN) and the Commodity Risk Management Expertise Centre (CORMEC).

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