

# Order and trade data analysis in recent spoofing investigations

Received (in revised form): 1st December, 2023

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## ABSTRACT

This paper examines recent enforcement action by the UK Financial Conduct Authority (FCA) in relation to spoofing and, in particular, the FCA's use of trading data analysis in support of its findings. Data analysis has become an increasingly important part of recent FCA market abuse enforcement actions, particularly with respect to spoofing investigations. Where other evidence of manipulative intent is absent, the FCA may seek to infer such intent from order and trading activity where there appears to be no legitimate explanation for it. But — as this paper explains — any such inference must be based on sound analysis: there must be clarity around the sample on which an observed pattern is based as well as any sampled trading which does not appear to fit the observed pattern and which might therefore point away from manipulative intent.

**Keywords:** spoofing, market abuse, intent, order and trade data analysis

## INTRODUCTION

In the context of market abuse, ‘spoofing’ is a term typically used to describe a form of abuse in which a trader places and then cancels one or more orders, without an intention to execute, usually for the purpose of moving prices in a favourable direction.

In the US, there is a specific spoofing offence in the Commodity Exchange Act, which defines spoofing as ‘bidding or offering with the intent to cancel the bid or offer before execution’<sup>1</sup> (although enforcement in relation to spoofing is also possible under other offences).

In the UK and EU, there is no specific spoofing offence, but spoofing is treated as a form of general market manipulation within the scope of Article 12(1)(a) of the Market Abuse Regulation on the basis it is likely to give a *false impression* as to supply, demand or price of a financial instrument and/or likely to secure the price of a financial instrument at an *abnormal or artificial price*.<sup>2</sup>

In both the US and the UK, assessing trader intent will usually be a crucial part of any spoofing investigation. Under the US regime, intent is a necessary element of the offence (ie bidding or offering *with intent to cancel*). Under the UK and EU regimes, while there is no requirement for any specific manipulative or other wrongful intent — the UK and EU regimes are typically referred to as ‘effects based’ because the legislation defines the misconduct by its impact — in practice, trader intent is almost always relevant to determining whether an impression given was true or false, or whether a price secured was artificial or not. In the UK and EU there is no requirement that authorities show that manipulative trading (including spoofing) had an actual impact on prices. And even if authorities consider that the manipulation did have an impact on the market, it will usually be easier for the authority to focus on whether the trading gave a false impression — which means focusing on the intent or purpose behind the trading.

The mere fact that an order is placed and subsequently cancelled before execution is not (without substantially more information) indicative of spoofing, because orders may be cancelled for any number of legitimate reasons. Indeed, most orders are cancelled before being executed.

For example, ‘manual’ traders may place an order with a specific intent that it be executed immediately or not at all — as with a ‘fill or kill’ or ‘immediate or cancel’ order. Such an order would be exposed for less time than a manual trader would have to react to market conditions, but that does not mean that the trader’s intent at the outset was to cancel. A trader might also cancel an order previously placed at the best bid or ask if the market moves away from that level, new information becomes available or other factors change in the market or in the trader’s portfolio. In that case, the trader may very well have cancelled because the order could no longer be filled at this price level, not because the trader intended from the outset to cancel.

The key question is whether, at the time the order was placed, the trader intended to cancel the order.

## INTENT

How do firms and regulators determine intent when investigating spoofing?

Asking the trader to explain the conduct *ex post* is the most obvious approach to evaluating intent, but there are challenges associated with this. First, an investigator may not be able easily to identify — or have ready access to — the trader who originated the order(s). Secondly, the trader may not have a clear recollection of the trading in question, particularly where the trader may typically place hundreds or thousands of orders each day and/or where the trading occurred some time ago. Thirdly, of course, traders engaged in manipulation may be prepared to lie or mislead about their true intent.

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An alternative source of evidence may be contemporaneous records or communications. These may be more reliable than a trader's after-the-fact recollections or account, but they may not exist and even if they do exist, they may be in the form of instant communications which are sometimes incomplete and/or difficult to interpret without the trader's assistance. Where the matter involves algorithmic trading, contemporaneous records evidencing the purpose of the trading might include the code of the algorithm itself. In *Coscia*, for example, focus was placed on the fact that *Coscia*'s trading software was 'specifically designed to' cancel large orders if they were at risk of being executed.<sup>3</sup> The program cancelled larger orders '(1) after the passage of time [sometimes milliseconds], (2) if the small [genuine] orders were filled, or (3) if a single large order was filled'.<sup>4</sup>

A further alternative is to infer the trader's intent from an analysis of the trading pattern itself. This approach assesses whether the trading pattern shows that the trader *must* have had a manipulative intent. The advantage of this approach is that accurate trading data will almost always be available and is not vulnerable to subjective recollection. The obvious disadvantage is that this approach involves an *indirect* analysis of intent which is likely to still involve subjective interpretation. The analytical design must recognise that data patterns resembling those found in spoofing may also be found coincidentally in data with frequent trading, especially if trading is complex and involves market making or multiple, overlapping strategies on both sides of the market. It is very important, therefore, that analysis is conducted in a rigorous, fair and balanced way, mindful of the need to avoid risks such as bias.

There has been a trend towards firms and regulators increasingly relying on data analysis in manipulation investigations. There are three probable main reasons for this.

First, those involved in potential manipulation may have become more sophisticated in avoiding creating accessible contemporaneous communications records so there may be fewer cases involving important communications evidence. Secondly, regulators may be becoming more ambitious in the cases they take on and more confident in pursuing cases where there is a lack of communications evidence on which they can rely. Thirdly, more recent cases have involved types of manipulation such as spoofing which are less likely to involve the creation of communication evidence because they can be committed by traders acting alone.

#### FORMS OF DATA ANALYSIS

The focus of the data analysis will vary and depend on the facts and circumstances of the matter, but common analyses often include (among many possibilities):

- (1) analysing the frequency with which the trader places orders on both sides of the market simultaneously;
- (2) analysing the frequency with which a trader cancels an order on one side of the order book shortly after executing an order on the opposite side of the order book;
- (3) analysing the duration for which cancelled orders are left open;
- (4) comparing the frequency of cancelled orders in general with the rate of cancellation in the instances of potential manipulation;
- (5) comparing the distance from the 'touch' (best bid and offer) of cancelled orders with the position of executed orders;
- (6) comparing the size, especially the displayed or visible size, of orders that are cancelled with the size of orders that are executed and with the liquidity available on both sides of the market on the relevant platform both normally and temporally adjacent to any cancelled orders;

- (7) analysing the use of the iceberg function (ie the possibility of showing only part of an order's full size) and comparing the size of orders for which the iceberg function is used with the size of orders that are visible to the market in full; and
- (8) analysing the orders in the context of other trading strategies in use at the time (ie is the pattern observed explainable by other strategies in operation at the time).

### Diego Urra and others

On 31st October, 2022, the Financial Conduct Authority (FCA) published a Decision Notice against Diego Urra finding that he had engaged in spoofing-like manipulation (the FCA does not use the term spoofing in the notice).

The FCA found that Mr Urra utilised an abusive trading strategy on the Eurex Exchange in Italian Government Bond futures (BTP Futures) in which he placed a large-sized order on one side of the order book for the purpose of creating the impression of increased supply or demand, with the objective of assisting the execution of a smaller genuine order he wished to trade on the opposite side of the order book. Once the smaller genuine order had been executed, he would cancel the large order. He acted both alone and together with two other traders.<sup>5</sup>

In its Decision Notice, the FCA provides an example and description of Mr Urra's behaviour from 28th June, 2016. The FCA provides the date at issue (28th June, 2016), as well as information on price levels and quantities of orders, but does not provide the precise timestamps at which the conduct took place. An analysis of the Eurex BTP Futures data for this date shows that there is one instance that matches significant aspects of the example trading pattern as identified by the FCA.

Figure 1 shows in more detail how the market moved at the time of Mr Urra's

trading. The horizontal bars above the horizontal white line (the midpoint) represent offers to sell BTP futures; the horizontal bars below the white line represent bids to buy BTP Futures, with each bar representing orders placed at a distinct price level.

During the period of interest, the order book on Eurex shows: (i) how a block of blue (indicating relatively small orders) appears on the sell side at a price of €141.18 at 7:47:51.994 Coordinated Universal Time (UTC) and is immediately partially executed with 30 contracts; and (ii) then rests on the order book until a block of red (indicating large orders) appears on the buy side.<sup>6</sup> This red block represents the 444 contracts submitted by Mr Urra at approximately 7:47:59.618 UTC. Once the large buy order is live in the order book, the mid-price moves up by one price level. This increase in price leads to further executions for the sell orders at the best offer level, including Mr Urra's sell order. According to the FCA, Mr Urra 'then cancelled his large buy order without it having traded'.<sup>7</sup> The episode lasted for approximately 12 seconds.

The FCA relied on the following features of the trading data in concluding that large orders placed and subsequently cancelled by Mr Urra were manipulative:

- (1) the large size of those orders relative to other orders in the BTP order book;
- (2) the low execution rate of the large orders compared to orders of similar size placed by other market participants;
- (3) that large orders were often for the same number of lots, suggesting that the orders were not driven by hedging requirements which would have led to greater variation in size;
- (4) that the large orders were placed away from the 'touch' and so were not at competitive prices and therefore less likely to execute;
- (5) that the large orders were not usually 'iceberged' (ie only partially shown to the

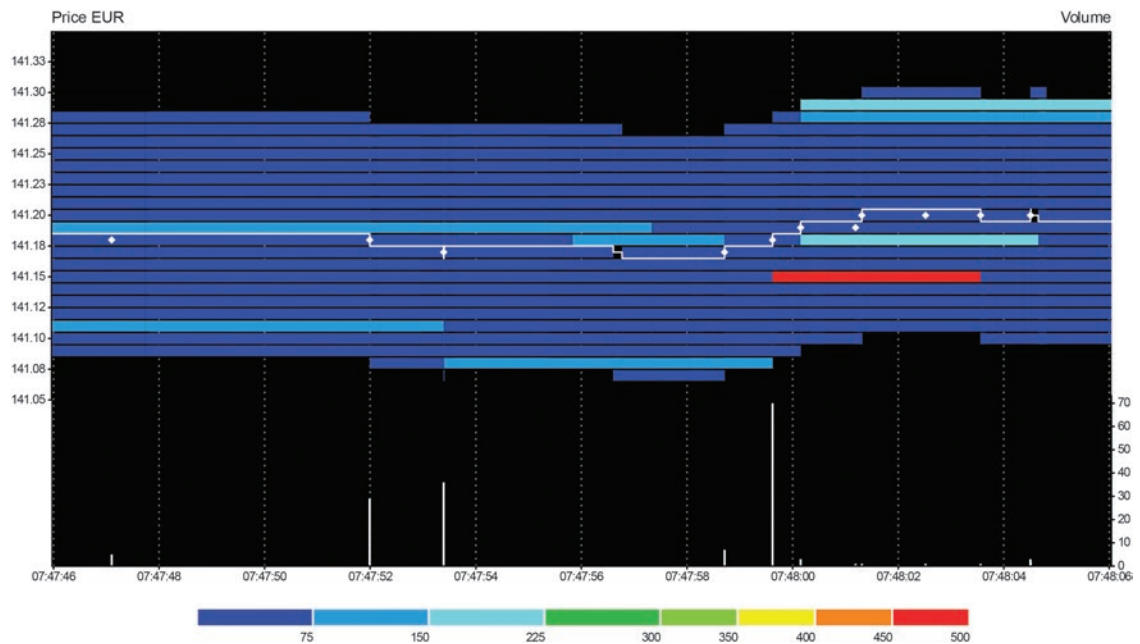


Figure 1 Eurex order book for long-term euro-BTP Futures. 28th June, 2016, 7:47:46–7:48:06\*

Source: Refinitive

\*Note: All times are in Coordinated Universal Time (UTC). All order book levels provided through Refinitiv are displayed. The lot size of long-term euro-BTP Futures contracts is EUR 100,000.

- market) where smaller orders were icebergged more frequently;
- (6) that the large orders were placed either shortly before or shortly after the placing of smaller orders on the opposite side of the order book;
  - (7) that the larger orders were cancelled shortly after the smaller orders on the opposite side of the book were executed (whether partly or fully); and
  - (8) the repeated pattern of trading, meaning that '[i]t is clear from the multiple occasions that Mr Urrea undertook this pattern of trading that he deliberately engaged in a repeated strategy, both individually and with Mr Lopez and Mr Sheth'.<sup>8</sup>

Mr Urrea and the other traders each denied any abusive trading strategy, arguing (among other points in their defence) that their orders were placed for legitimate

reasons associated with the need to hedge or pre-hedge risk driven by client orders and with the need of price discovery. The FCA has rejected that account, despite the apparent absence of any direct contemporaneous communication or other evidence to the contrary, primarily on the basis of the strength of the inference it feels it is able to draw from the trading data.

All three traders have chosen to challenge the FCA's findings in the Upper Tribunal. That will require the FCA to prove its case 'de novo', and it therefore remains to be seen what approach the FCA will take to the analysis and presentation of trading data evidence.

Overall, the FCA's investigation found a total of 129 'occasions' of 'abusive conduct' over a period of two months (1st June to 29th July, 2016).<sup>9</sup> The FCA's Decision Notice does not provide any transparency on the analyses that the agency has done of



the wider dataset of the traders' orders to identify these incidents. It does point to the example discussed above and also describes, at a high level, 'a sample of 10 occasions' from which 'it is evident that the trading was abusive'.<sup>10</sup> However, neither for the example nor for the sample of '10 occasions' has the FCA explained if these represent the broader set of 129 incidents. Use of the term 'sample' may suggest a degree of blind selection, but it is unclear if that is indeed what is meant or whether the FCA has in fact found and selected 10 examples in which it considers the evidence to be stronger.

When this case goes before the Upper Tribunal (as is expected), the FCA's case will be tested. While the FCA has provided supportive data analysis with respect to a sample of '10 occasions' and for the example of 28th June, 2016, questions remain as to how systematic the FCA's analysis was and therefore how representative the instances are that the FCA has identified, and whether this constitutes a pattern sufficient to support a successful manipulation case. Questions considered by the Upper Tribunal might include:

- (1) To what extent are the instances identified by the FCA part of a larger pattern both across time and in frequency?
- (2) What is the FCA's fundamental basis for choosing what is and what is not in their sample of occasions of 'abusive conduct'?
- (3) What was the impact on the market and how far away from the market did Mr Urrea typically place the large orders?
- (4) How does the size of Mr Urrea's large orders compare to the volume that was outstanding in the order book at the time?
- (5) What was the duration of the orders that Mr Urrea placed and how does this duration compare to the duration distribution of the broader BTP market?
- (6) What is the cancellation rate of orders in the BTP market generally and to what extent does the cancellation rate depend on order size?
- (7) To what extent were Mr Urrea's large orders executed?
- (8) Were Mr Urrea's large orders shown in full to the market at all times?
- (9) Might the patterns identified by the FCA have appeared as a result of legitimate trading strategies?

## CONCLUSION

Data analysis has become an increasingly important element of recent FCA enforcement in relation to market abuse, particularly spoofing. Absent of other evidence of manipulative intent, it may be legitimate to infer such intent from order and trading activity where there appears to be no legitimate explanation for it. But any such inference must be based on sound analysis. Where reliance is placed on a pattern of behaviour as observed in the data, there must be clarity around the sample on which the pattern is based. In addition, appropriate evidential weight must be given to any sampled trading that does not appear to fit the observed pattern and that might therefore point away from manipulative intent. *Urrea* may provide guidance on what the Upper Tribunal expects of the FCA when seeking to make a case in this way.

## AUTHORS' NOTE

The views expressed in this paper are solely those of the authors and do not necessarily represent the views of Cornerstone Research, Clifford Chance or any of their clients. The authors wish to thank Anaïs Kreklewich, Blake Boswell and Helena Bauer-Mitterlehner of Cornerstone Research for their valuable research and comments.

## REFERENCES AND NOTES

- (1) The Commodity Exchange Act (21st September, 1922, ch. 369, §1, 42 Stat. 998; 15th June, 1936, ch. 545, §1, 49 Stat. 1491.).
- (2) Parliament and Council Regulation (EU) No. 596/2014 of 16th April, 2014 on market abuse

(market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC, Article 12(1)(a). While there is no separate spoofing offence, subsidiary legislation specifies the following practice as capable of falling within the scope of the general manipulation offence: 'Submitting multiple or large orders to trade often away from the touch on one side of the order book in order to execute a trade on the other side of the order book. Once the trade has taken place, the orders with no intention to be executed shall be removed — usually known as layering and spoofing.' Annex II (5)(e) of the Market Abuse Regulation.

- (3) *United States v Coscia*, 866 F.3d 782, 794–795 (7th Cir. 2017).
- (4) *Ibid.*
- (5) Financial Conduct Authority (31st October, 2022) Decision Notice to Diego Urrea: Reference Number DXU01006, available at <https://www.fca.org.uk/publication/decision-notice/diego-urra-2022.pdf>

(accessed 19th February, 2024). The FCA also published Decision Notices against Poojan Sheth and Jorge Gonzalez in relation to the same or similar conduct. For convenience, this paper refers to the case against Mr Urrea. All three traders are challenging the FCA's findings against them in the Upper Tribunal.

- (6) *Ibid.*, p. 11. According to the FCA, Mr Urrea placed 'a genuine order to sell 90 lots of BTP Futures at a price which improved the existing Best Offer by one tick and so became the new Best Offer'. A part of this sell order immediately executed, while another part of the order remained live in the market. According to the FCA, 'the majority of the order remained untraded until Mr Urrea placed a large order to buy 444 lots at a price 2 ticks away from the Best Bid, at which point another market participant immediately bought the remainder of the smaller sell order'.
- (7) *Ibid.*, p. 12.
- (8) *Ibid.*, p. 11.
- (9) *Ibid.*, pp. 2, 3.
- (10) *Ibid.*, p. 14.