

Order Book Analysis

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1 Data Description

The data consist of 5 levels of both sides of the order book, for 5 different days. Each days spans roughly 10 hours worth of data (36 billion micros, see table below)

date	min timestamp	max timestamp
20190610	0	36000000000
20190611	0	36000000000
20190612	0	36000000000
20190613	0	36000000000
20190614	0	35999621354

1.1 Data resampling

The order book is of the form below:

timestamp	bp0	bq0	ap0	aq0
110	10045	62	10055	98
175	10065	46	10075	42
220	10075	9	10080	25

where timestamp is in microseconds. Given the

First a simple plot of the data. The simple mid price is considered:

$$P_{mid} = \frac{bp0 + ap0}{2} \quad (1)$$

Also the inverse weighted mid price is calculated:

$$P_{mid} = \frac{bp0 \times aq0 + ap0 \times bq0}{bq0 + aq0} \quad (2)$$

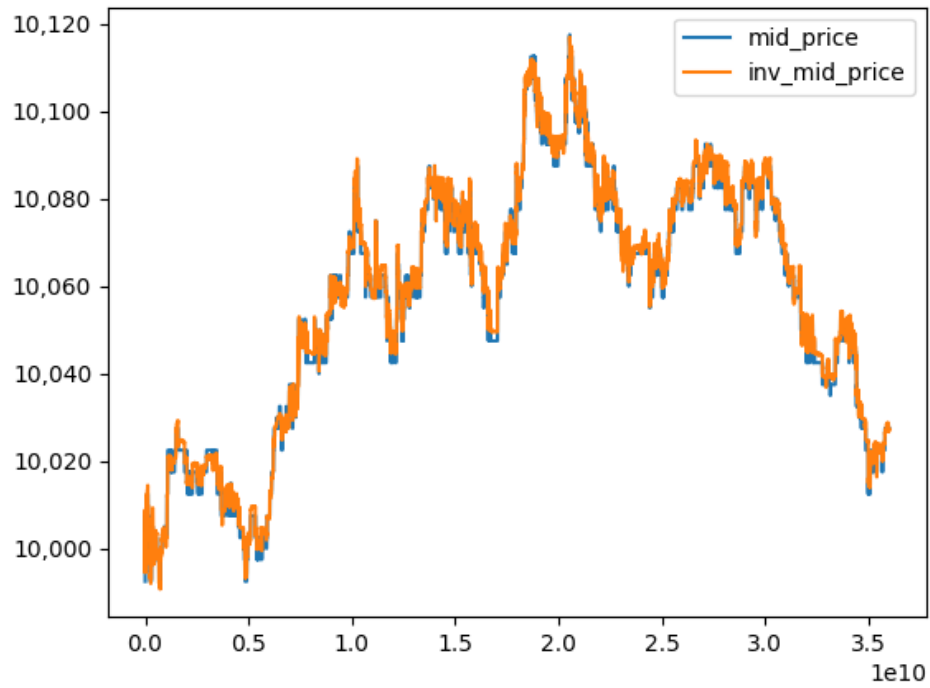


Figure 1

2 Model Selection

3 Results