LiquidMetrix

Best Execution, Quantified

NYSE Euronext June 2011 Outages

Short Article LM0008

28 June 2011

NYSE Euronext Outages in June 2011

Key Points

- NYSE Euronext had 3 outages within 2 weeks in June 2011.
- During the first outage there was minimal trading on the MTFs.
- For the 2 later outages, which occurred after market open, there was more significant trading on the MTFs along with reasonable liquidity (in terms of spreads / depths).
- Trading volumes on the MTFs during the latter two outages was around 15-20% of 'normal' (which comprise about 30% of normal trading).
- In all 3 cases there was a clear drop-off in order book / trading activity when NYSE Euronext announced a time for a resumption in trading, indicating participants are unwilling to quote or trade whilst the primary exchange is performing the re-start auction.
- In terms of market impact, we can see that the NYSE Euronext outages lie somewhere between the outages on the London Stock Exchange and Borsa Italiana in February 2011:
    - The Borsa Italiana outage caused the entire market to halt; there was no significant trading activity or liquidity on any of the MTFs..
    - The London Stock Exchange outage saw some light trading volumes on the MTFs but significantly there were extended periods during which reasonable order book depths and spreads existed, meaning that participants at least had the option of trading.
    - ...The impact of NYSE Euronext's outage lies between these two extremes.

Background

Over a two week period, NYSE Euronext suffered a series of technical outages affecting various parts of its cash trading. The outages were of different durations, at different times of the day and in the case of the last 2 outages, affected only some segments of NYSE Euronext's cash trading universe.

This article looks at each of the outages concentrating on high frequency trading volumes, order book depths and spreads before and after the outages.

NYSE Euronext Outage #1 – 20 June 2011 – All cash markets

The first NYSE Euronext outage occurred on 20th June 2011 between 08:00 – 09:00 (UK time) and affected all NYSE Euronext cash markets. We will examine the CAC-40 index and one particular CAC-40 constituent (France Telecom).

The outage occurred prior to market open. The graphs below show trading volumes, spreads, depths and order book messages over the period 08:00 to 09:30 (UK time). Trading after 09:20 (i.e. 20 minutes after trading on NYSE Euronext resumed) returned to 'normal' allowing for comparisons with other trading days. We have excluded NYSE Euronext itself from the statistics so that the behaviour of different MTFs can be seen more clearly. Some basic conclusions that can be drawn:

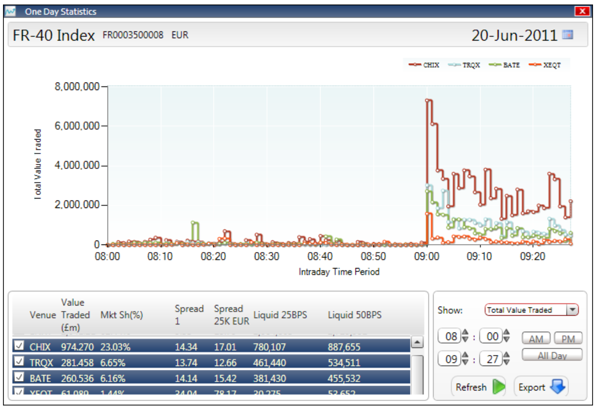
- There was very little trading volume. The MTFs traded less than 5% of their typical volume in this period. As MTFs would normally represent around 30% of the CAC-40 market share, this means that only 1-2% of normal trading activity occurred.

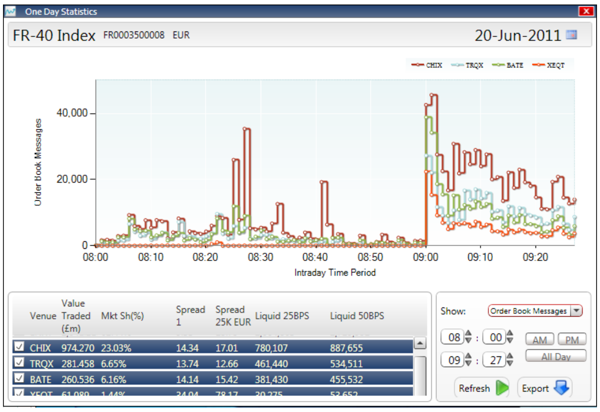
- However, the MTFs were still active during the period. There were a significant number of order book updates on the MTFs around 08:30; this tailed off once NYSE Euronext announced that trading would resume at 09:00.

- Order book spreads were generally wide on most MTFs during the period of the outage although at times between 08:10 and 08:20, some of the MTFs had spreads of around 10-20BPS (where they would typically be around 4.5BPS for the CAC-40).

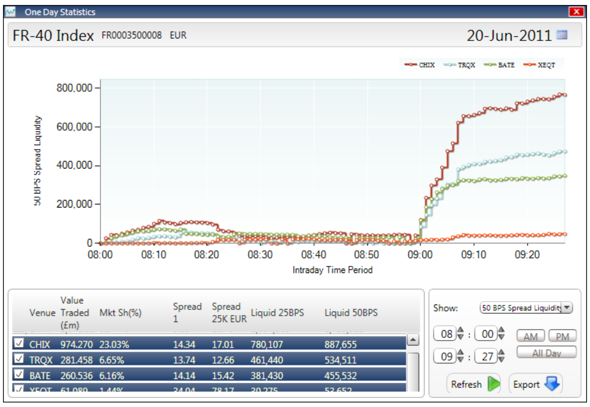
- The quantity of resting lit liquidity on book within +/- 0.5% of mid price was much lower than usual. At its peak, Chi-X Europe had around €100,000 until around 08:30 after which it declined.

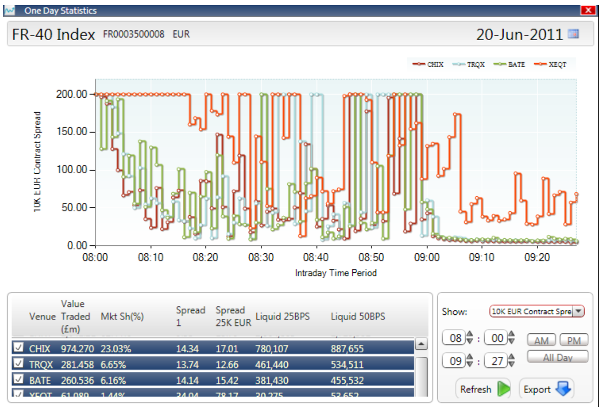
CAC-40





Value Traded **Order Book Messages**



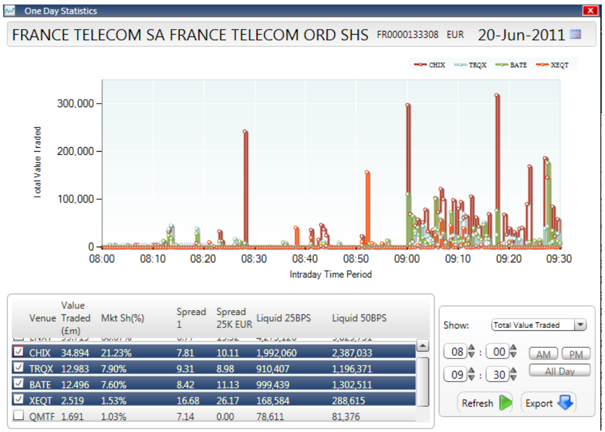


50 BPS Liquidity **€10,000 Contract Spread**

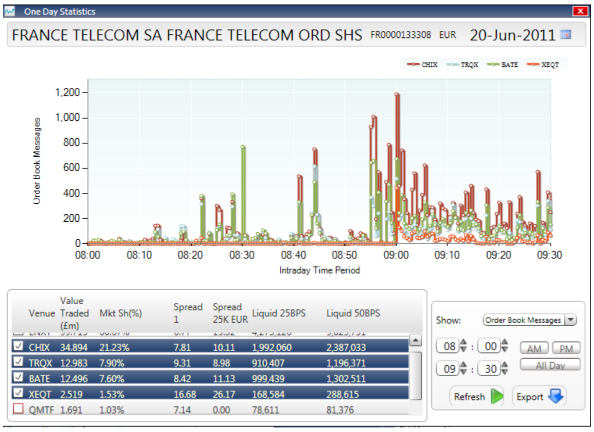
(Screenshots taken from the LiquidMetrix WorkStation)

The general conclusion is that there was very little trading activity but this is unsurprising given how wide and volatile the spreads on the MTFs were. There is evidence that some market makers were actively managing orders on the MTF order books (the number of order book messages) but the prices (spreads) they were offering were not competitive enough to attract aggressive orders. This behaviour is in contrast to that observed during the recent (February 2011) London Stock Exchange outage where, although trading volumes were low, the MTF order books had near decent spreads and liquidity so the possibility of trading with reasonable implicit costs existed.

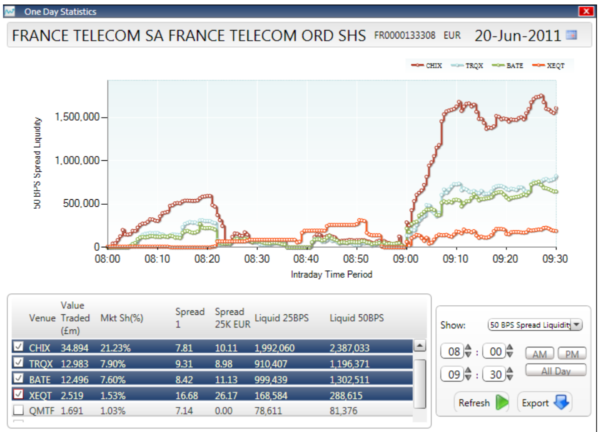
Considering one instrument: France Telecom 20 June 2011



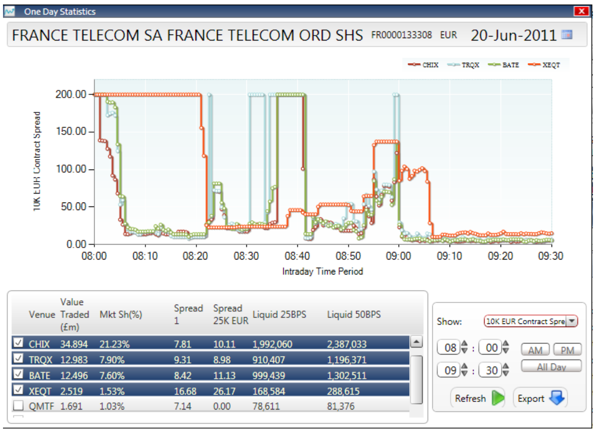
Value Traded



Order Book Messages



50 BPS Liquidity



€10,000 Contract Spread

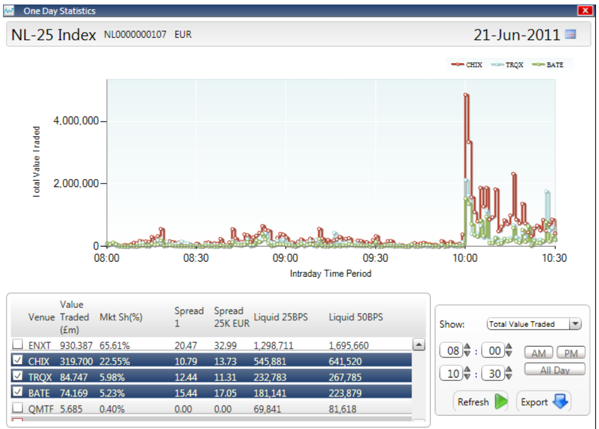
Figures for one particular instrument (France Telecom) are broadly consistent with the results for the index as a whole. In this case, the MTFs offer fairly good spreads in the period from 08:10 to 08:20 but these then widen significantly in the run up to the resumption of trading on NYSE Euronext.

NYSE Euronext Outage #2 – 21 June 2011 – AEX and BEL cash markets

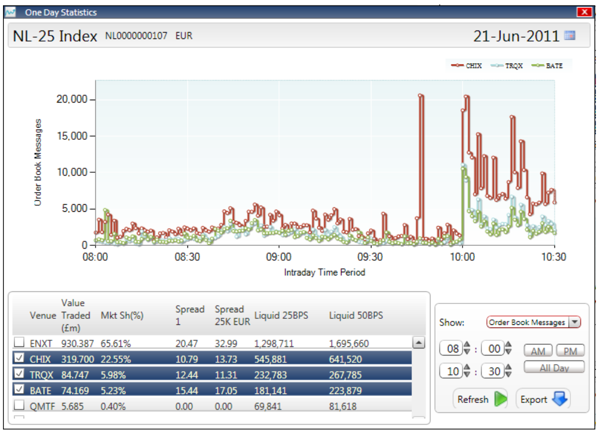
The second outage occurred the next day, 21 June 2011 between 8:03 – 10:00 (UK time).

This outage was longer, lasting nearly two hours, but only affected some market segments on NYSE Euronext and also happened just after market open. The graphs below again show trading volumes, spreads, order book depths and market data messages during the outage for the AEX index.

AEX 25 Index

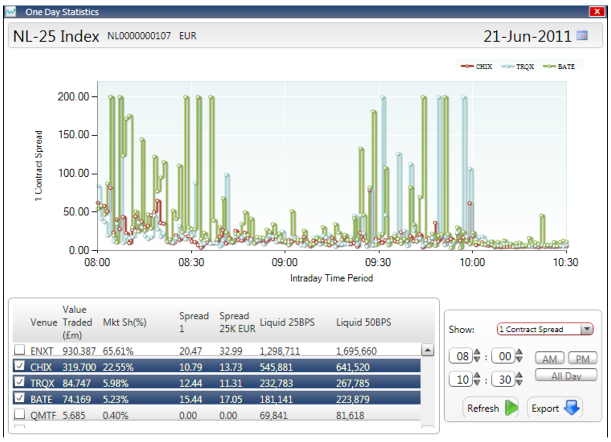


Value Traded



Order Book Messages

50 BPS Liquidity



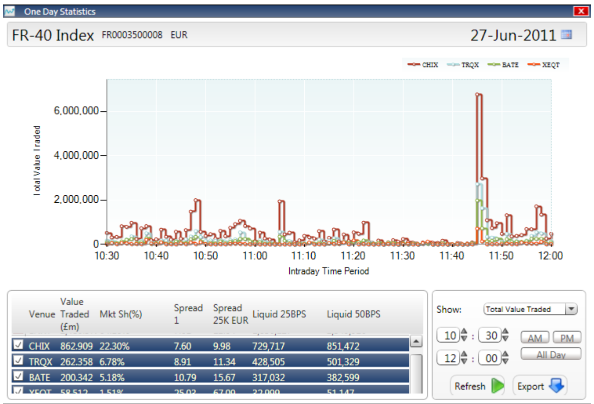
1 Contract Spread

- This time the volumes on the MTFs for the AEX were around 10-15% of 'normal' compared to about 5% for the CAC-40 during the first outage the day before.
- The three major MTFs (Chi-X Europe, BATS Europe and Turquoise) maintain relatively tight spreads during the period from 08:30 to 09:30 (with BATS Europe trailing slightly).
- Resting liquidity (value on book within 50 BPS of mid) builds to about 30-40% of normal between 09:00 and 09:30.

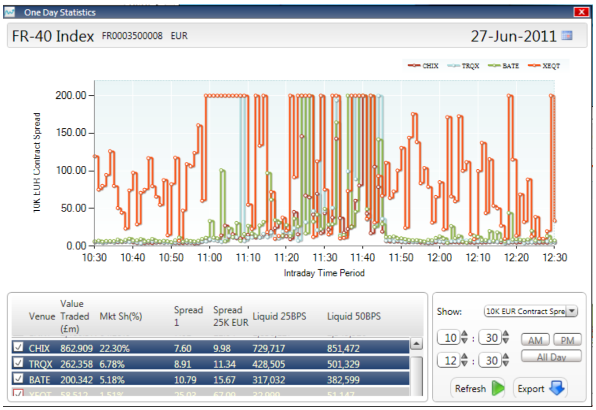
NYSE Euronext Outage #3 – 27 June 2011 – CAC- 40 instruments

The third NYSE Euronext outage happened a few days later on 27 June 2011. The market went down between 10:57:08 – 11:45:00 (UK time), but this time only CAC 40 instruments were affected. NYSE Euronext went into pre auction at 11:22 (UK time).

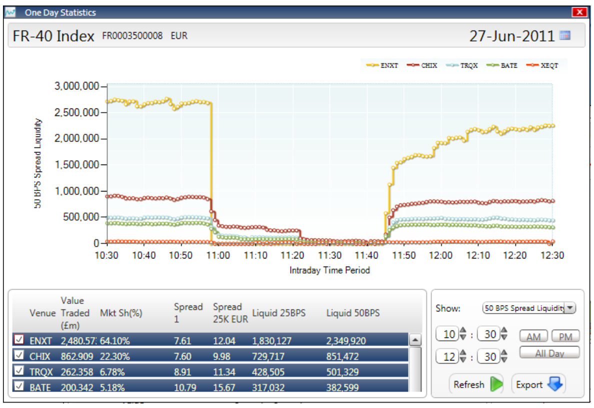
CAC 40



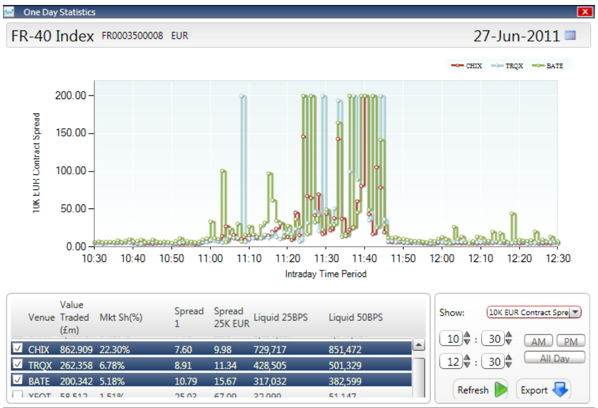
Value Traded



€10,000 Contract Spread (with Equiduct)



50 BPS Liquidity



€10,000 Contract Spread (without Equiduct)

- This time the MTFs managed to trade about 30% of their 'normal volumes (about 10% of normal volume for the market as a whole).
- Spreads and liquidity worsened considerably at the time of the outage but liquidity remained about 40-50% of 'normal' for the first 30 minutes of the outage.
- As in the other two cases, when Euronext went into pre-auction (at 11:22), trading virtually halted on the MTFs.

Basic Conclusions

- During the first outage, which happened prior to market open and affected all NYSE Euronext markets, there was very little trading activity. The liquidity available on the MTFs was poor with high spreads and little volume on the lit books.

- The second outage, which happened just after market open and only affected AEX/BEL stocks, differed in that there was a period between 08:30 and 09:30 (UK time) where the MTFs quoted reasonable spreads and some trading occurred, albeit at around 15-20% of normal MTF volumes (about 5% of normal overall volumes). When NYSE Euronext announced the resumption of trading, liquidity and trading dried up for the 30 minutes leading up to NYSE Euronext re-opening.

- The third outage, which affected only French stocks and was over a period of about 1 hour in the middle of the trading day, was similar to the 2nd outage. Again, up until the point at which NYSE Euronext started the re-opening process, there was some trading and reasonable spreads quoted on the MTFs. Trading volumes this time were about 30% of 'normal' for the MTFs (about 10% of normal for the whole market).

In the second and third outages, which only affected some NYSE Euronext stocks and which occurred during continuous trading, the basic patterns of trading activity, order book update messages and order book spreads / depths during the outage are similar to those which we reported for the February 2011 outage on LSE. However, for the NYSE Euronext outages, the primary market is clearly more 'important' in that the levels of trading and quality of spreads/depths on the MTFs was not relatively as good as was available on the MTFs during the London Stock Exchange outage.