Discussion on
The impact of fragmentation on European stock exchanges
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What does this paper do?

- Analysis the impact of fragmentation of trading on the market quality of European primary exchanges
- Market quality indicators
  - Liquidity (relative quoted spread, price impact indicator, book depth at touch)
  - Price efficiency (R^2 delay, Lo and Mac Kinley variance ratio)
  - Price discovery (Hasbrouk IS and Gonzalo-Granger decomposition)
- Data
  - Descriptive statistics and price discovery analysis on STOXX50 stocks
  - Econometrics analysis (difference in difference) of liquidity and price efficiency on a subset of IBEX35 stocks (not fragmented stocks) and FTSE100 stocks (fragmented stocks)
- Conclusions
  - No evidence of negative effect of fragmentation on liquidity
    - Liquidity increases with trading volume and capitalization and decreases with volatility)
  - Price efficiency has worsed with the advent of fragmented market
    - Is it a direct consequence of fragmentation or the lack of efficient consolidation of data on order and trades and best execution regulation?
  - Primary markets are no longer monopolists into the price discovery mechanism

"European style" fragmentation

- Mifid via fragmentation improves competition among trading venues
  - Lower trading fees on primary exchanges
  - New pricing schemes on both primary exchanges and MTF
  - Technological innovation and lower latency into the exchange industry
- Mifid makes liquidity more fragmented
  - The lack of a CLOB and of a consolidated tape increases research costs and makes SORs a strategic tool
  - Price priority rules are violated across markets
  - Best execution and trade-through . Do retail investors get a true benefit from fragmentation?

"European style" fragmentation
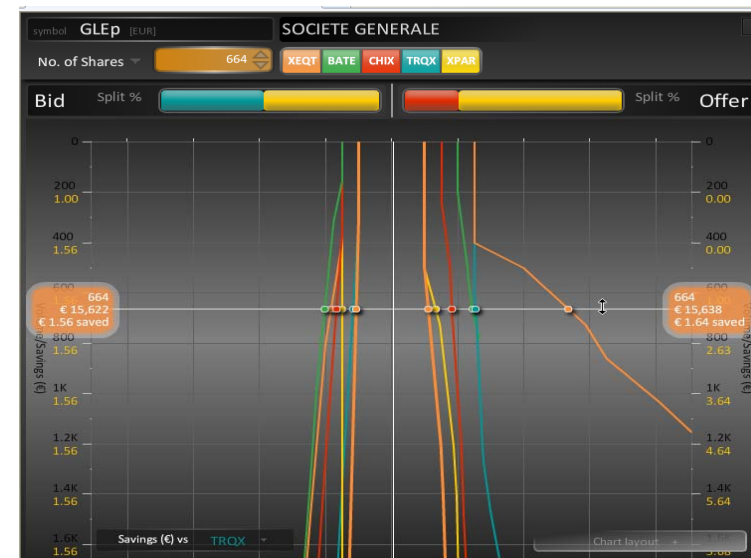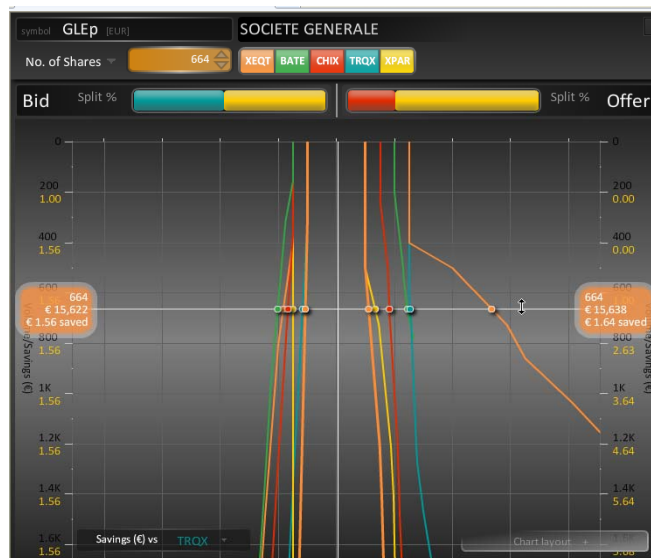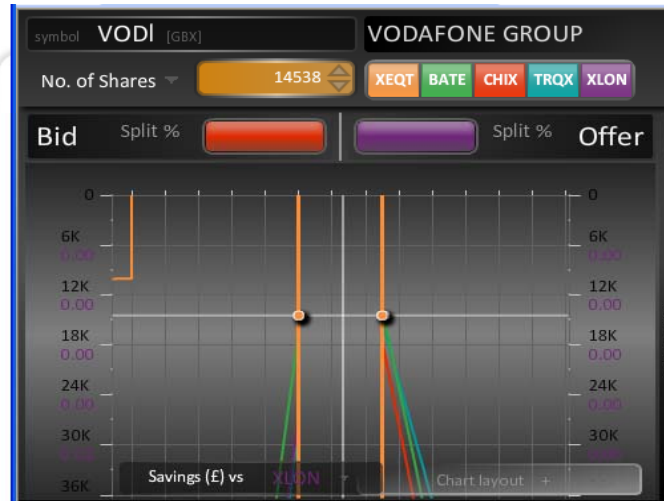
Is there a primary market?

- "The development of sophisticated order routing combined with the existence of a consolidated tape and the "trade through" rule have risulted in a single [US] virtual market with many point of entry "(O'Hara, Ye, 2011)
- Primary market liquidity as a proxy for local trader (retail investor?) liquidity vs global liquidity as a proxy for global traders (institutional investors?) liquidity (Gresse, 2010)
  - Are retail investors treated fairly?
    - Foucault, Menkveld (2008) show a high percentage (> 70%) of trade through on Dutch stocks

Which type of liquidity

- Liquidity is like pornography: it is hard to define, but you know it, when you see it (O'Hara, 2004)
- Liquidity cannot be captured by a single measure (Bernstein, 1987; Dong et al., 2007)
  - width, depth at touch (as in Fioravanti, Gentile) are not enough
  - depth deeper into the book (Exchange liquidity measure-XLM- Gomber et al.,2004), immediacy, resiliency(liquidity recovery time Chlistalla, 2011) are other relevant dimensions
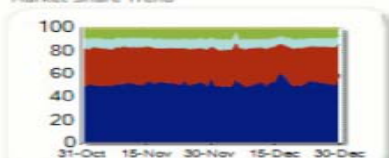
December 2011

Market Share

Rank	Venue	Market Share	Change
1	LSE2	51.97%	+0.20
2	CHIX	31.23%	+0.10
3	TRQX	8.67%	-0.12
4	BATE	7.93%	-0.11
5	XHFT	0.08%	-0.04
6	XEQT	0.06%	0.00
7	QMTF	0.06%	-0.02

Volume Trend
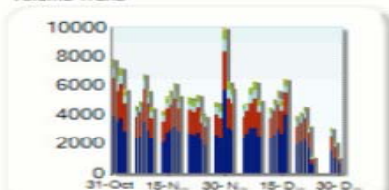
Market Share Trend

Spreads

At touch

Rank	Venue	Spread (bps)	Change
1	CHIX	7.57	-0.67
2	LSE2	8.07	-0.78
3	TRQX	8.93	-0.96
4	BATE	9.10	-0.79
5	XHFT	22.09	-11.52
6	QMTF	29.89	+10.15
7	XEQT	59.73	-3.71

Monthly Spread Trend
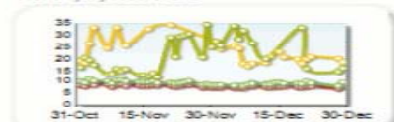
25k EUR deal

Rank	Venue	Spread (bps)	Change
1	LSE2	10.45	-0.82
2	CHIX	10.53	-0.95
3	TRQX	13.13	-1.33
4	BATE	15.61	-0.67
5	XHFT	25.01	-8.84
6	QMTF	35.83	+16.57
7	XEQT	183.44	-6.21

Monthly Spread Trend
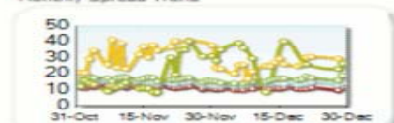
Book Depths

10BPS Depth (top of book)

Rank	Venue	Depth (1K EUR)	Change
1	LSE2	226.6	+21.9
2	CHIX	154.0	+11.1
3	TRQX	83.4	+12.4
4	BATE	72.2	+8.2
5	QMTF	18.3	+7.1
6	XHFT	15.9	+2.2
7	XEQT	4.9	+0.2

Monthly Depth Trend
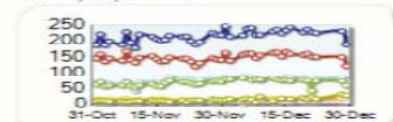
50BPS Depth (deeper into book)

Rank	Venue	Depth (1K EUR)	Change
1	LSE2	1,415.0	+20.5
2	CHIX	628.2	-16.1
3	TRQX	368.3	+10.0
4	BATE	290.8	-17.8
5	XHFT	76.5	+0.8
6	QMTF	54.9	+10.9
7	XEQT	10.8	+0.1

Monthly Depth Trend

Best Prices

At touch

Rank	Venue	Best Price (%)	Change
1	CHIX	7.19	-1.76
2	LSE2	5.58	-0.97
3	BATE	1.69	-0.10
4	TRQX	1.12	-0.70
5	QMTF	0.16	+0.09

Best Prices Trend
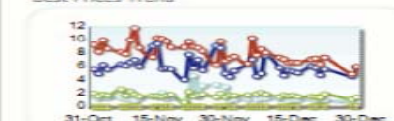
25k EUR deal

Rank	Venue	Best Price (%)	Change
1	LSE2	40.33	-0.36
2	CHIX	28.31	-0.91
3	TRQX	4.17	-0.27
4	BATE	3.08	-0.11
5	QMTF	0.08	+0.03

Best Prices Trend
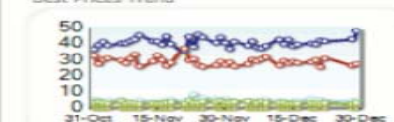
December 2011 Highlights

- LSE and CHI-X slightly gained market share, LSE still retains over 50%.

- Spreads tightened both at touch and for larger deals on most venues.

- On-book liquidity increased on LSE top of and deeper into the book. On the MTFs liquidity increased at top of book and TRQX also showed increased liquidity at 50 BPS depth.

- CHI-X continues to quote best prices most often at touch. For larger deals LSE continues to lead the table ahead of CHI-X.

Price discovery in a low latency world

- What are high frequency data in a low latency world?
  - 5 minutes vs 1-2 milliseconds (algo reaction time)
    - Are results consistent over these two different time frames?
    - Are trading venues with different latency comparable?

- With cancellation privileges on a low-latency platform such as Chi-X, the electronic quotes placed by algorithmic participants are not expressions of an affirmative obligation to trade. Rather, algorithmic 'quote-boxes' may be quoting strategically with no expectation of being hit by another order. That is, they may be simply 'pinging' to calibrate algorithms or to engage in 'liquidity search', a category of algorithms to elicit liquidity from other market participants

- In addition of course, only trivial depth is available at many quotes. When quotes are deeper, Chakravarty, Harris, and Wood (2009) show that new information first appears in depths. Depth quotes may be a better indication of interest in trading than the trade prices that walk up and down thin books.