

Blended Automation and beyond: algorithmic pricing and its implications for the sociology of markets

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What did we learn from the NYSE story?

- NYSE was a the world's dominant floor-based exchange
- Starting in 2004 it moved trade facilitation to algorithms, but not completely....
- The floor still remained, but operated fully only for two periods of 30 min each day
- The floor is 'switched on' when price volatility reaches a certain threshold.
- Blended automation - *duplication* and *exceptionality*

Why did the NYSE keep the floor?

- The floor is a prop and helps in the IPO business
- The specialists had power and Blended Automation maintains it in a new setting
- The floor 'intervenes' when algos fail



Blended Automation as Specialists' power?

- Demutualization – specialists' seats were bought
- NYSE acquired an ECN (Archipelago)
- NYSE merged with Euronext
 - Floor trading fell to 10% of overall revenue
- Then, Regulation NMS pushed specialists to 1-second reaction time.

Crude Signalling (1)



Algorithms and crude signalling

- When Anne Hathaway's name was mentioned frequently in Twitter, Berkshire Hathaway's stock rose in prices.
- Possible: trading algorithms bought the BH stock.
- The algorithms' 'perceptions' were crude - they had to be fast!

The Flash Crash

- In the afternoon of 6 May, 2010, the Dow Jones Industrial Average (DJIA) began a precipitous decline of nearly 700 points in a few minutes. Twenty minutes later, the market rebounded, regaining most of the 700 point drop on the DJIA.

The Flash Crash and Blended Automation

- A single trade, a large sell order worth about \$4 billion through an automated execution algorithm triggered other algos to react.
- During the Flash Crash, HFT traders “traded proportionally more as volume increased, and overall were net sellers in the rapidly declining broad market along with most other participants.”
- In contrast, “The partially manual LRPs allowed the Big Board to apply some measure of old-fashioned reasonability tests to price formation.”
- NYSE maintains a very high (est. 70%-90%) share of transactions in stocks during manual trading facilitation periods.

Crude Signalling (2): Algorithmic price wars on Amazon



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Crude Signalling (2)

theguardian

Amazon sellers face financial uncertainty after 1p automated pricing glitch

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Rupert Neate

Monday 15 December 2014 19.51 GMT



Amazon as a trading facilitation platform

- Sellers' algorithms compete on placement
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Amazon itself competes with its traders

Amazon Changes Their Prices 2.5 Million Times a Day

December 16, 2013

From Amazon job ads

- software developer - "The Pricing Analytics team builds the infrastructure to run large scale pricing experiments and simulations on millions of products ranging from books to electronics to shoes.

(<http://amzn.to/OV6tEH>)

- A senior manager of retail pricing - "... Large scale distributed systems that are the brains behind every price on every item sold by Amazon worldwide... "

(<http://linkd.in/QbfMjn>)

Differentiation strategy

- But, there are areas where Amazon determines prices manually. For example, Kindle and e-books.
 - These are the areas where Amazon seeks market domination (Amazon PR announcement, November, 2013).

Theoretical discussion: intra-market

- Blended Automation provides sensemaking when the algo systems break down
 - Related to the high-reliability literature (Perrow 1984, Weick and Roberts 1993, Roberts 1990)
- Aspers distinguishes between Fixed-role and Switch-role markets (2007, 2011) – we claim that the picture is dynamic: trade facilitators try to maintain the fixity of roles.

Theoretical discussion (2)

- Blended automation may also provide a macro political-competitive power:
- NYSE and Amazon facilitate trading between potential traders
- Trading facilitators try to be effective in maintaining a differentiation ecology, where they differ from traders.