



The 2010 Flash Crash

CAN IT HAPPEN AGAIN?

*To find the cause of the crash the
CFTC (Commodities Futures
Trading Commission) was ...
“using bicycles to chase Ferraris.”*

- DR. JOHN BATES, CONTRIBUTOR TO TRADERS MAGAZINE

Soundtrack of The 2010 Flash Crash

https://www.youtube.com/watch?v=E1xqSZy9_4I

What Happened on May 6, 2010?

- ❑ Supposedly, one futures trader in Britain, Navinder Singh Sarao, sold futures for S&P 500 E-minis for about \$200 million (one source says \$40M)
- ❑ That caused S&P 500 futures to crash
- ❑ When arbitragers saw S&P 500 futures plummet, they sold S&P 500 stocks & bought now cheap S&P 500 futures
- ❑ The NYSE fell 900 points in 15 minutes, losing a trillion dollars in value

What Happened on May 6, 2010?

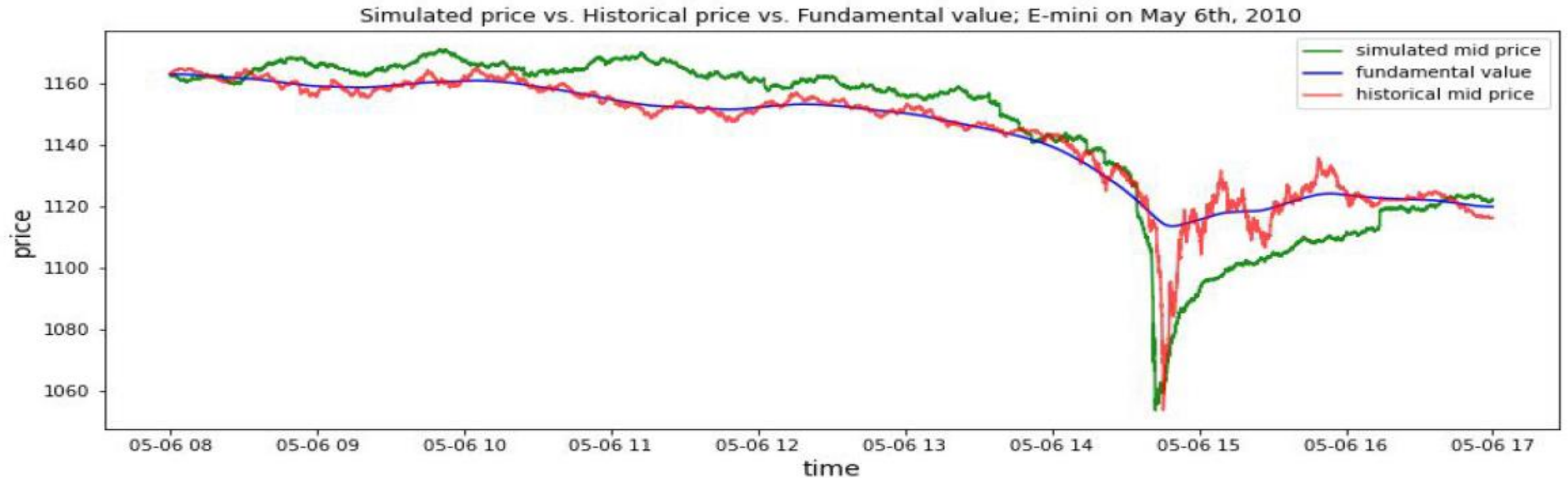


Fig. 4 One single simulation of the 2010 Flash Crash event. Red line is the historical price; green line is the simulated price; blue line is the fundamental value extracted by Kalman Smoother

From Gao et al. 2022

What Happened on May 6, 2010?

- ❑ Buyers quickly came back as stocks were undervalued
- ❑ The market rebounded to about where it was when the panic began in less than an hour
- ❑ This was the first FLASH CRASH
- ❑ Another major one happened in 2015

The Dodd-Frank Act (July 21, 2010)

- ❑ In response, congress passed the Dodd-Frank act, which addressed consumer protection issues and banned trading practices such as *spoofing*, often used with *layering* and *front running*:
 - ❑ Spoofing – the illegal practice of bidding or offering with intent to cancel before execution. This influences price
 - ❑ Layering – as prices drop, repeatedly lowering bid
 - ❑ Front Running – knowing a big sell order is coming, putting your order in first to get a better price (easy to do if you are a broker)

Why Did the Flash Crash Happen?

- ❑ Regulators and academics struggled to understand why
- ❑ The CFTC and other regulators tried to figure out the cause. How could a \$40 Million trade cause a \$1 trillion shock to the market?
- ❑ It took until 2015 for Singh to be arrested
- ❑ Modeling of markets using agent based models can reproduce some of the time line, but not perfectly (Gao et al. 2022)
- ❑ The overreaction of High Frequency Traders is blamed, but no consensus has been reached as to why the 2010 crash happened

Additional Resources

- The Two Biggest Flash Crashes of 2015. August 2021. *Investopedia*.
<https://www.investopedia.com/articles/investing/011116/two-biggest-flash-crashes-2015.asp>
- Post Flash Crash, Regulators Still Use Bicycles To Catch Ferraris. Editorial Staff, John Bates. *Traders Magazine*, April 24, 2015.
<https://www.tradersmagazine.com/departments/technology/post-flash-crash-regulators-still-use-bicycles-to-catch-ferraris/>
- The Man Behind the Flash Crash: Navinder Singh Sarao. Finance Blitz. YouTube.
<https://www.youtube.com/watch?v=OKTCTJnWOUc>
- High-Frequency Financial Market Simulation and Flash Crash Scenarios Analysis: An Agent-Based Modelling Approach. Gao, K., P. Vytelingum, S. Weston, W. Luk and C. Guo. 2022. <https://arxiv.org/abs/2208.13654>