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# Anatomy of flash events

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# Topics

- Defining a flash event
- The 2016 sterling flash event
- The 2019 yen flash event
- Other flash events

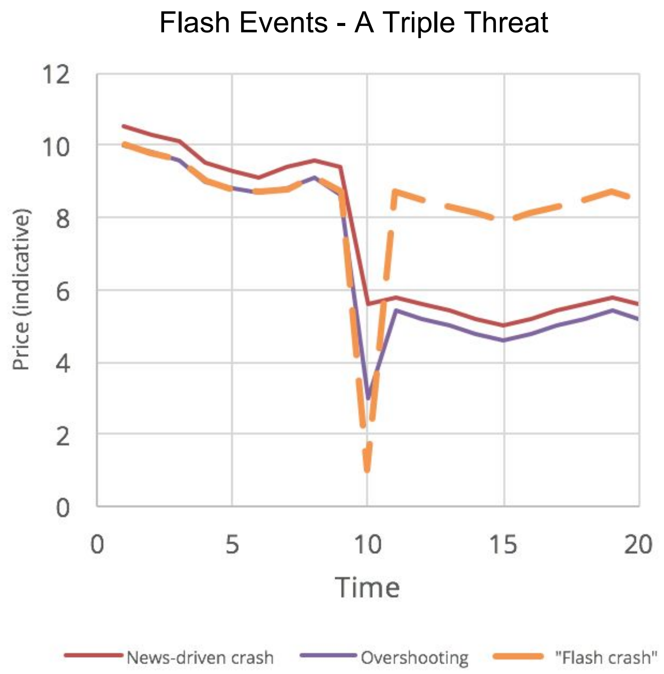
# Flash events are usually driven *within* the microstructure

**Key features:**

1. Large, fast, price move (5 standard deviations or more) followed by illiquidity and/or divergent pricing across venues

2. Usually not driven by new fundamentals

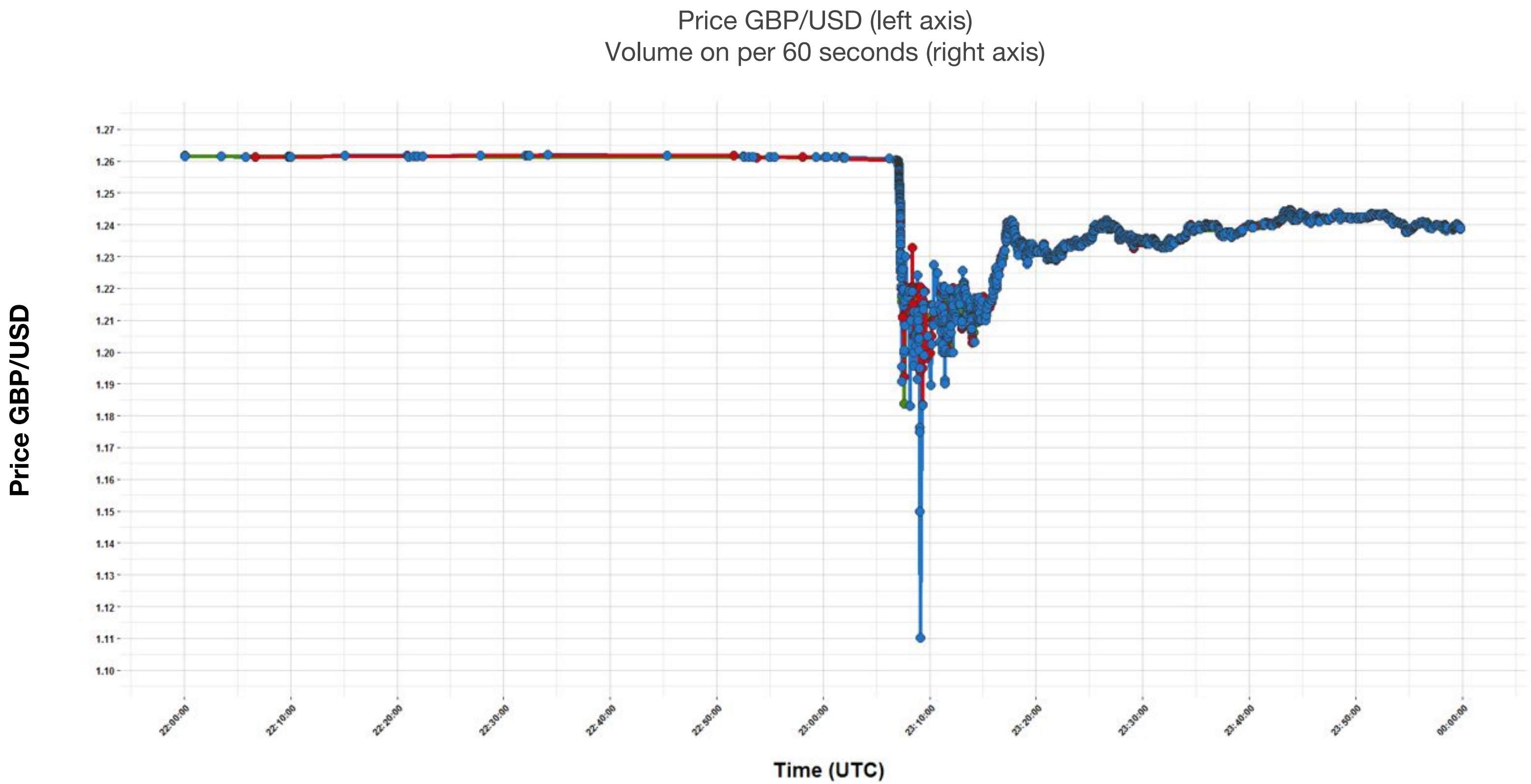
3. Reverts to close to initial price level



# 2016 sterling flash event: what we learned

| BIS Report | Our Additional Comments |
|---|---|
| 1. **Three phases:** i) depreciation, ii) dysfunction, iii) recovery (in price and market functioning). | Depreciation lasted a long time (15 seconds). Many 1000s of trades can be executed in that timeframe. |
| 2. **Option markets** appeared to play a key role. | Depreciation took the form of a very orderly market in which participants could see, react, and trade. |
| 3. Flash events **affect a broad range of electronic markets** (equities, FX, bonds etc.) | The decline began on multiple venues almost at the same time (within microseconds of each other). |
| 4. Data quality issues can become a driver of events in themselves. **Lack of information prevents decisive decision-making.** | Market Participants listening to ECNs that broadcast tick-by-tick data would have seen the move, even if not trading actively, and had time to take/exit positions. |

# Two hour view of GBP event



# Comparing the yen flash event to sterling flash event

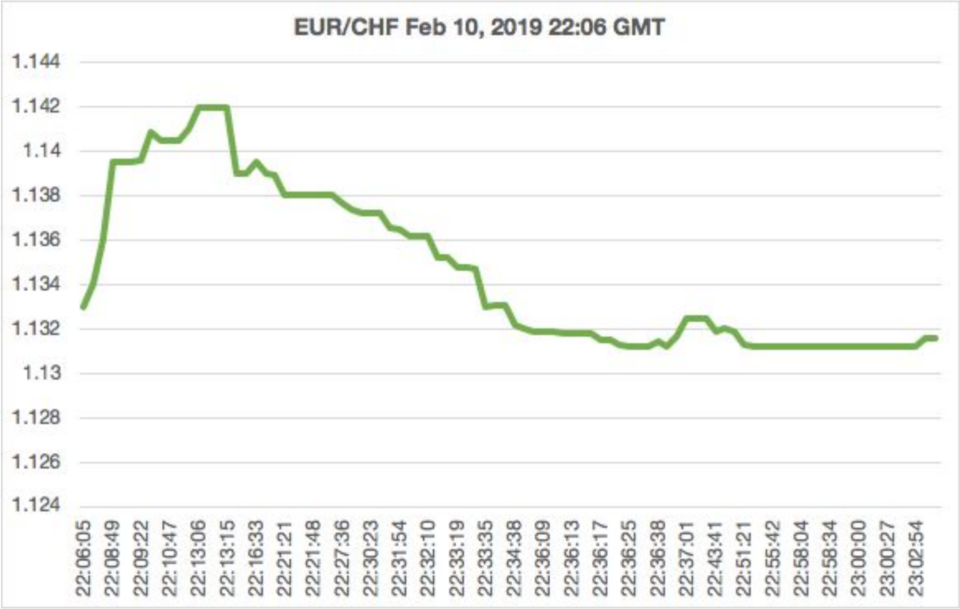
| | USD/JPY | GBP/USD |
|---|---|---|
| **Standard deviations** | Approx. 5 | >50 |
| **Depreciation phase** | 6 minutes | 15 seconds |
| **Dysfunction phase** | 3 minutes | 30 seconds |

# Sharp move: EUR/CHF February 10, 2019 22:06 GMT

*Not large enough to be considered a flash event*

- Start of week; thin market
- One “big figure” move
- Did not exhibit the dysfunction stage clearly
- Possibly a manual trader mistaking the “big figure”

- *There are a material number of quotes that are one big figure off-market during the week*
- *They typically have minimal impact on market functioning*



# Summary

- Flash events are usually driven *within* the microstructure

- We define a flash event as a five or more standard deviation move followed by dysfunction (illiquidity or divergence of prices across venues)

- Typical to see three phases: depreciation, dysfunction, recovery

# Other flash events

- US Equities: 6-May-2010: 5% to 15% in ~15 mins (1% per minute)
- JPY: 17-Mar-2011: 4% peak in 4 mins (1% per minute)
- US Treasuries 24-Jun-2013 ("taper tantrum"): 0.5% deviations from underlying values
- US Treasuries: 15-Oct-2014: 0.37% on yields in 15 minutes *(this has only happened twice before in 25 years)*
- CHF: 15-Jan-2015: 41% peak move in 20 mins (2% per minute)
- EUR/USD: 18-Mar-2015: 2% in "minutes"
- US equity options: 24-Aug-2015: 5%+, developed overnight (night of 23 Aug)
- NZD: 24-Aug-2015: 10% in 2 mins (5% per minute)
- ZAR: 10-Jan-2016: 8% peak in 10 mins, (0.8% per minute)

- For comparison: GBP: 7-Oct-2016: 9% in 1 mins (9% per minute)